



Department of Development Services

Building Division

4701 W. Russell Rd • Las Vegas NV 89118
(702) 455-3000

Ronald L. Lynn, Director/Building Official • Gregory J. Franklin, Assistant Director

January 31, 2011

LETTER TO INDUSTRY

TECHNICAL GUIDELINE TG-50

- The enforcement of provision 1 in TRG-Daily Section 7.1.2, "Reports shall be handwritten" will be suspended until August 1, 2011.
- The enforcement of provision 4 in TRG-C Section 6.1.4, "Verify the location of existing reinforcing steel and/or post-tension tendons prior to drilling." will be suspended until August 1, 2011.
- The enforcement of provision 15 in TRG-F Section 6.1, "Special inspections shall be performed after the rough installation of electrical, automatic sprinkler, mechanical and plumbing systems and suspension systems for ceilings to verify fireproofing has not been damaged or removed, where applicable." will be suspended until August 1, 2011.

If you have any questions, you may contact Brian Lenihan at bpl@co.clark.nv.us.

A handwritten signature in blue ink, reading "Dave Durkee".

David L. Durkee, P.E.
Principal Engineer

A handwritten signature in blue ink, reading "Brian Lenihan".

Brian Lenihan, P.E.
Senior Engineer



Department of Development Services

Building Division

4701 W. Russell Rd • Las Vegas NV 89118

(702) 455-3000 • Fax (702) 221-0630

Ronald L. Lynn, Director/Building Official • Gregory J. Franklin, Assistant Director

SUBJECT: TG-50-2010 – Final Report Requirements

1.0 PURPOSE: The purpose of this Technical Guideline is to give general direction regarding reporting requirements during the performance of special inspection activities. A Final Report is required under section 22.02.525 (B) 2 (b) of the Clark County Building Administrative Code.

2.0 SCOPE: A Prime Agency, a subcontracted agency, a special inspector, and Registered Design Professional shall submit specific reports and other documents to the Building Official as outlined in this guideline. These reports and other documents are required at specific stages during the construction of projects that require special inspection. The intent of these reports and other documents is to provide the results of observations, tests, and other information that verify work requiring special inspection was inspected and found to be in compliance with the approved construction documents, adopted codes, and standards.

3.0 ABBREVIATIONS & ACRONYMS


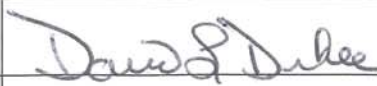

BAC:	Building Administrative Code
CCDDS-BD	Clark County Department of Development Services-Building Division
IBC:	International Building Code
ICC:	International Code Council
MQAA	Mechanical Quality Assurance Agency
NDT:	Non-destructive Testing
QAA:	Quality Assurance Agency
QAASIA:	Quality Assurance Agency Special Inspection Agreement
SNA-IBC:	Southern Nevada Amendments to the IBC
TG:	Technical Guideline
TRG:	Technical Reporting Guideline

4.0 DEFINITIONS: For the purposes of this technical guideline certain terms, phrases, words and their derivatives shall be construed as specified in this section, the IBC and the BAC of Clark County.

Area Acceptance Report: A report to the Building Official which states that all the required activities for special inspection item(s) such as concrete, masonry, wood, etc. are complete and acceptable for a portion of the permitted work.

APPROVED DATE: February 1, 2010

EFFECTIVE DATE: February 12, 2010

Revised By:	Concurred By:	Approved By:
		
Brian Lenihan, P.E. Senior Engineer	David L. Durkee, P.E. Principal Engineer	Theodore L. Droessler, P.E. Manager of Engineering

Certificate of Compliance: A certificate stating that materials and products meet specified standards or that work was done in compliance with approved construction documents.

Compliance: Conformity in fulfilling official requirements.

Construction Documents: Plans, specifications, supporting calculations and other data prepared to describe the design, materials, physical characteristics, location, orientation, and scope of a proposed project necessary to obtain a permit.

Daily Report: A report that shall include all inspections, observations, testing activity, non-compliances, area acceptance reports, etc. that took place on that day.

Final Report: A complete report with a separate section for each category of inspections and testing performed.

Inspection Completion Report: A report to the Building Official that states that all the required activities for a special inspection category are complete and acceptable.

Non-Compliance Report: A report to the Building Official and to the contractor which identifies an item not conforming to the approved construction documents.

Partial Final Report: An incomplete report with a separate section for each category of inspections performed.

Quality Assurance Agency: An agency approved by the Building Official to conduct inspections and/or testing as required by Clark County Codes.

Record of Correction: A report used to clear a noncompliance/noncompliant work.

Registered Design Professional: An individual who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed.

Technical Reporting Guideline: A guideline that provides inspection and testing responsibilities and daily reporting requirements.

5.0 REFERENCES:

BAC, Clark County Building Administrative Code
IBC, International Building Code
SNA-IBC, Southern Nevada Amendments to the IBC
Technical Guidelines
Technical Reporting Guideline

6.0 RESPONSIBILITIES:

6.1 Prime Agency

- 6.1.1 It is the responsibility of the Prime Agency to submit a signed final report stating that all work requiring special inspection was inspected, reported, and found to be in compliance with the approved construction documents, IBC, and the BAC. The Final Report shall certify that all inspection and testing requirements were completed as required or exceptions taken and documented as being acceptable to Clark County.
- 6.1.2 The agency shall respond to deficiencies noted by CCDDS-BD.
- 6.1.3 The agency shall use CCDDS-BD forms/templates, when applicable.

6.2 Subcontracted Agency

- 6.2.1 It is the responsibility of the Subcontracted Agency to submit a copy of all records of special inspection activities to the Prime Agency.
- 6.2.2 The subcontracted agency shall respond to deficiencies noted by CCDDS-BD.

6.3 Registered Design Professional

- 6.3.1 The registered design professional shall perform structural observations per sections 1702 and 1709.1 of the IBC. Additional information and requirements is contained within technical guideline 10.
- 6.3.2 The registered design professional shall use the Structural Observation Report (Form 802) and provide a copy of the report to the Prime Agency.

6.4 CCDDS-BD - Structural

- 6.4.1 Special Inspection Final Reports shall be reviewed by CCDDS-BD for compliance with the Quality Assurance Agency Special Inspection Agreement, the BAC, the Technical Guidelines, IBC, and the approved construction documents.
- 6.4.2 CCDDS-BD shall review Final Reports for compliance with the content and format requirements of this Guideline. CCDDS-BD assigned personnel shall review and disposition the report within 15 working days after the receipt of the report.
- 6.4.3 Deficiencies requiring correction shall be sent to the Prime Agency.
- 6.4.4 If the Prime Agency fails to respond to deficiencies within 45 days of deficiency notice date, the disapproved report will be forwarded as is to Records. Reports which have been sent to CCDDS-BD records that have outstanding discrepancies must be resubmitted with the resolutions.
- 6.4.5 A Partial Final Report may be accepted at the discretion of the CCDDS-BD Supervising Building Inspector.

6.5 CCDDS-BD - Smoke Control/Fire Protection

- 6.5.1 It is the responsibility of the Fire Protection group to review reports dealing with smoke control systems and smoke barrier construction for compliance to the Quality Assurance Agency Special Inspection Agreement, the BAC, and the Technical Guidelines, and the approved construction documents.
- 6.5.2 The Fire Protection group shall review the report for compliance with the content and format requirements of this Guideline. CCDDS-BD assigned personnel shall review and disposition the report within 15 working days after the receipt of the report.
- 6.5.3 Deficiencies requiring correction shall be sent to the Prime Agency.
- 6.5.4 If the Prime Agency fails to respond to deficiencies within 45 days of deficiency notice date, the disapproved report will be forwarded as is to Records. Reports which have been sent to CCDDS-BD records that have outstanding discrepancies must be resubmitted with the resolutions.
- 6.5.5 A Partial Final Report may be accepted at the discretion of the CCDDS-BD Assistant Manager.

6.6 CCDDS-BD - Grading

- 6.6.1 It is the responsibility of the CCDDS-BD engineering group to review reports dealing with earthwork construction, shallow foundation construction, deep foundation

construction, and other geotechnical reports for compliance to the Quality Assurance Special Inspection Agreement, the BAC, and the Technical Guidelines, and the approved construction documents.

- 6.6.2 The engineering group shall review the Final Grading Report for compliance with the content and format requirements of this Guideline. CCDDS-BD assigned personnel shall review and disposition the report within 15 working days after the receipt of the report.
- 6.6.3 Deficiencies requiring correction shall be sent to the Prime Agency.
- 6.6.4 If the Prime Agency fails to respond to deficiencies within 45 days of deficiency notice date, the disapproved report will be forwarded as is to Records. Reports which have been sent to CCDDS-BD records that have outstanding discrepancies must be resubmitted with the resolutions.
- 6.6.5 A Partial Final Grading Report may be accepted at the discretion of the CCDDS-BD Principal Engineer.

7.0 PROCEDURE: QAA Special Inspection Final Reports shall be submitted to CCDDS-BD at 4701 W. Russell Road, Las Vegas, Nevada (Field Services front counter).

7.1 Final Report

7.1.1 Final Report Contents

- Certificate of Compliance (IBC 1704.1.2) – Agencies must use the CCDDS-BD format illustrated in Form 843. No additions, deletions, or other edits to this document will be accepted.
- Partial Certificate of Compliance (IBC 1704.1.2) – Agencies must use the CCDDS-BD format illustrated in Form 844. No additions, deletions or other edits to this document will be accepted.
- Additional informational documents may be supplied by the Prime Agency.
- Table of Contents
- Permit
- QAASIA – Quality Assurance Agency Special Inspection Agreement.
- Copy of the executed Project Startup Form 803.
- Inspector list stating the name and CCDDS-BD approval items for each inspector and a copy of the inspector's signature.
- Each inspection category shall have its own section; i.e., concrete, masonry, structural steel, wood, etc.
- Each inspection category shall include daily reports, test data, non-compliance reports, record of corrections, inspection completion report, and area acceptance reports, when applicable. Reports shall be numbered sequentially for each category and noncompliance reports shall have their own subsection, divided into separate categories, having non-compliances and their corresponding record of corrections numbered sequentially for each category.
- MQAA Final Report Checklist items listed in TG-60.
- Applicable items or reports as deemed necessary by CCDDS-BD staff.
- CCDDS-BD approved work plans and work plans resolution in accordance with Appendix C when applicable.

7.1.2 Final Report Section Requirements

7.1.2.1 General

- Daily inspection reports must comply with the applicable TRG.
- Inspection completion reports for each category must be included in each section. When requested area acceptance reports shall be furnished to CCDDS-BD staff.
- Final and Partial Final Reports must be signed and stamped by the Agency's Professional Engineer as required by the BAC

7.1.2.2 Concrete Construction (IBC Chapter 19 & 1704.4, SNA-IBC 1704.4)

- CCDDS-BD approved mix designs required for concrete which exceeds 2500 psi by design.
- Concrete compressive strength test results.
- Precast / prestressed concrete product certification (concrete products, tension cables)
- Post-tensioned equipment calibration certifications.

7.1.2.3 Masonry Construction (IBC Chapter 21 & 1704.5, SNA-IBC 1704.5)

- Masonry compressive strength test results.
- CCDDS-BD approved mix designs are required for grout which exceeds 2500 psi by design.

7.1.2.4 Steel Construction (IBC Chapter 22 & 1704.3, 1707.2, 1707.4)

- Structural steel frame and base plate grouting inspections and testing reports.
- Welding and NDT inspection reports. This section shall also contain Welding Qualification Record (Form 829).
- All bolting inspection reports to include bolt testing and equipment calibration reports (high strength and non-high strength bolting applications). Pretensioned joints with bolt sizes 1-1/2" diameter and greater shall have pre-installation verification confirmed in a laboratory in lieu of field test.
- Fabricator/manufacturer certificate of compliance shall comply with TG-2 and be contained in the structural steel frame section, or in the applicable high strength bolting, welding, or light gauge steel section.
- Non-approved structural steel fabricators shall have their products inspected and tested as required by applicable codes and TG-2.

7.1.2.5 Wood Construction (IBC Chapter 23, 1704.6, 1707.3)

- Wood Special Inspection Report (Form 838)

7.1.2.6 Soils (IBC Chapter 18 & 1704.7, SNA-IBC 1704.7)

- Final grading report as required by Section 1803.5 and SNA-IBC must be included when applicable.
- In the event that the final grading report has been previously reviewed and accepted it does not need to be included in the final report.

7.1.2.7 Pile Foundations (IBC 1704.8, 1808, & 1809)

- Geotechnical engineers pile foundation requirements.

- 7.1.2.8 Pier Foundations (IBC 1704.9, 1808, 1810 & 1811)
 - Geotechnical engineers pier foundation requirements.
- 7.1.2.9 Sprayed Fire-Resistant Materials (IBC 1704.10), & Mastic and Intumescent Fire-Resistant Coatings (IBC 1704.11)
 - Density test results.
 - Adhesion & cohesion bond strength test results.
 - Certificate of Compliance from contractor.
- 7.1.2.10 EIFS and Exterior Architectural Attachments and Walls Verification (IBC 1704.12)
 - Installation Cards.
- 7.1.2.11 Special Cases (IBC 1704.13)
 - Applicable items or reports as deemed necessary by CCDDS-BD.
- 7.1.2.12 Smoke Control (IBC 909 & 910, 1704.14)
 - Final reports are to be submitted in compliance with this technical guideline, TG- 60, and TRG-K.

7.2 CCDDS-BD Standard Forms

- 7.2.1 Wood Special Inspection Report (Form 838)
- 7.2.2 Adhesive Anchorage of Rods/Bolts (Form 811)
- 7.2.3 Welder Qualification Record (Form 829)

8.0 RECORDS: The QAA Special Inspection Final Report is a permanent record maintained by CCDDS-BD.

9.0 ATTACHMENTS:

- Appendix A:** Final & Partial Certificate of Compliance Templates (Form 843 & 844)
- Appendix B:** TRG-Daily, C, M, S, W, F, E, K
- Appendix C:** Work Plan

10.0 REVISION HISTORY:

Title	Revision/Approved Date	Effective Date
TG-50-2009	February 1, 2010	February 12, 2010
TG-50-2008	October 10, 2008	October 17, 2008
TG-50-2006	February 27, 2006	March 15, 2006
TG-50-96	November 25, 1996	November 25, 1996

Appendix A:
Final & Partial Final Report Cover Letter Templates

**COMPANY LETTERHEAD
ADDRESS, TELEPHONE & FAX #**

CERTIFICATE OF COMPLIANCE

CLIENT INFO

DATE

Final Report

Project Name:

Project Address:

Permit No.

Project No.

COMPANY NAME performed and completed the special inspection services for the **PROJECT NAME** project and is in compliance with the Clark County Department of Development Services – Building Division approved construction documents, and the quality assurance agency special inspection agreement. **COMPANY NAME** performed the Item(s) _____ special inspection services.

SUBCONTRACTED AGENCY performed the Item __ special inspection service. All inspections performed by **SUBCONTRACTED AGENCY** were reviewed and accepted by **COMPANY NAME**.

(This paragraph may be deleted if there has been no subcontracting)

Only CCDDS-BD approved special inspectors were utilized to perform those specific inspections as required by the Quality Assurance Agency Special Inspection Agreement. Any items that were found to be in noncompliance with the approved construction documents were repaired or replaced, and reinspected for acceptance.

Attached for your review are the daily inspection reports, testing results, and other applicable reports.

CCDDS-BD REVIEW STAMP

REGISTERED DESIGN PROFESSIONALS
SEAL HERE



**COMPANY LETTERHEAD
ADDRESS, TELEPHONE & FAX #**

PARTIAL CERTIFICATE OF COMPLIANCE

CLIENT INFO

DATE

Partial Final Report

Project Name:

Project Address:

Permit No.

Project No.

COMPANY NAME performed the special inspection services for the **PROJECT NAME** project and the completed areas are in compliance with the Clark County Department of Development Services – Building Division approved construction documents, and the quality assurance agency special inspection agreement. **COMPANY NAME** performed the Item(s) _____ special inspection services.

SUBCONTRACTED AGENCY performed the Item __ special inspection service. All inspections performed by **SUBCONTRACTED AGENCY** were reviewed and accepted by **COMPANY NAME**.

(This paragraph may be deleted if there has been no subcontracting)

Only CCDDS-BD approved special inspectors were utilized to perform those specific inspections as required by the Quality Assurance Agency Special Inspection Agreement. The following areas are not complete, _____. The following areas are complete _____.

Attached for your review are the daily inspection reports, testing results, and other applicable reports.

CCDDS-BD REVIEW STAMP

REGISTERED DESIGN PROFESSIONALS
SEAL HERE



Appendix B:
TRG-Daily, C, M, S, W, F, E, K



Department of Development Services

Building Division

4701 W. Russell Rd • Las Vegas NV 89118
(702) 455-3000

Ronald L. Lynn, Director/Building Official • Gregory J. Franklin, Assistant Director

SUBJECT: TRG-Daily – Verification & Daily Reporting Requirements

1.0 PURPOSE: The purpose of this Technical Reporting Guideline is to specify minimum daily reporting requirements during the performance of special inspection activities. A Daily Report is required under section 22.02.525 (B) 2 of the Clark County Building Administrative Code (BAC), and shall be presented in the Final Report per Technical Guideline 50.

2.0 SCOPE: The prime agency and special inspector shall prepare specific reports and other documents for submission to the Building Official as outlined in this guideline. These reports are required at specific stages during the construction of projects that require special inspection. The intent of these reports is to provide the results of the visual inspections & material tests that verify work requiring special inspection was inspected and found to be in compliance with the approved construction documents and the Clark County Building Administrative Code.

3.0 ABBREVIATIONS & ACRONYMS




BAC:	Building Administrative Code
CCDDS-BD	Clark County Department of Development Services-Building Division
IBC:	International Building Code
QAA:	Quality Assurance Agency
SNA-IBC:	Southern Nevada Amendments to the International Building Code
TG:	Technical Guideline
TRG:	Technical Reporting Guideline

4.0 DEFINITIONS

For the purposes of this technical reporting guideline certain terms, phrases, words and their derivatives, shall be construed as specified in this section, the technical codes, and the Clark County BAC.

Approved Revisions: Changes made to the original construction documentation which have been submitted to CCDDS-BD for review and are accepted.

APPROVED DATE: February 1, 2010
EFFECTIVE DATE: February 12, 2010

Written by:	Concurred by:	Approved by:
		
Brian P. Lenihan, P.E. Senior Engineer	David L. Durkee, P.E. Principal Engineer	Theodore L. Droessler, P.E. Manager of Engineering

Area Acceptance Report: A report to the Building Official which states that all the required activities for special inspection item(s) such as concrete, masonry, wood, etc. are complete and acceptable for a portion of the permitted work.

Construction Documents: Plans, specifications, supporting calculations and other data prepared to describe the design, materials, physical characteristics, location, orientation, and scope of a proposed project necessary to obtain a permit.

Daily Report: A report that shall include all inspections, observations, testing activity, non-compliances, area acceptance reports, etc. that took place on that day.

Inspection Completion Report: A report to the Building Official that states that all the required activities for a special inspection category are complete and acceptable.

Non-Compliance Report: A report to the Building Official and to the contractor which identifies an item not conforming to the approved construction documents.

Quality Assurance Agency: An agency approved by the Building Official to conduct inspections and/or testing as required by Clark County Codes.

Record of Correction: A report used to clear noncompliance/noncompliant work.

Special Inspector: An inspector, employed by a quality assurance agency, which has demonstrated his/her competence to the satisfaction of the Building Official, has achieved and maintained national certification(s), and meets the requirements of TG-17.

Technical Reporting Guideline: A guideline that provides inspection responsibilities and daily reporting requirements.

5.0 REFERENCES:

BAC, Clark County Building Administrative Code
IBC, International Building Code
SNA-IBC, Southern Nevada Amendments to the IBC
Technical Guidelines

6.0 RESPONSIBILITIES:

6.1 Prime Agency

- The quality manager shall ensure that the Prime Agency has provided sufficient staff to perform the required special inspections.

6.2 Special Inspector

- Inspection as herein required of the materials, installation, fabrication, erection or placement of components and connections requiring special expertise to ensure compliance with approved construction documents and referenced standards (see IBC Section 1704).
- The special inspector may only perform inspection services that he/she is approved for by Clark County per TG-17.
- The special inspector shall use the most recent CCDDS-BD approved construction documents.
- The special inspector shall maintain copies of all inspections and laboratory reports at the job site until all special inspection and/or testing is completed.
- The CCDDS-BD staff shall direct the QAA to perform special inspection activities, when necessary.

7.0 PROCEDURE:

7.1 Daily Inspection Report (IBC Chapter 17, BAC 22.02.525 (B) 2 b)

7.1.1 Author

- Printed Name
- Original Signature

7.1.2 Content

- Reports shall be handwritten.
- Reports shall be numbered sequentially for each category as per the attached Inspection Report Designation Numbering System guideline.
- The report must be a stand alone document, and shall be maintained on site.
- The report shall contain the permit number, the project address, date, and a description of the area inspected (gridlines or other method to clearly identify the area). The daily reports shall be legible and signed by the special inspector that performed the work.
- The daily inspection report must have a statement of compliance to CCDDS-BD approved plans and specifications.
- Document that the CCDDS-BD approved construction documents are on site and used to perform the inspection, including references to the detail and page numbers and all other applicable sources to describe what was physically inspected or taking place.
- Any non compliant element shall be referenced on each daily report when the condition is applicable to the inspection.
- The phrase "As per approved plans and specifications" shall not be used as a catch-all phrase.
- All material inspection reports must include documentation of identification markings which conform to the ASTM standards specified in the approved construction documents and verify manufacturer's certified mill test reports, when required.
- The special inspector shall document violations of the IBC and approved construction documents, as a non-compliance report.
- Only one inspection category activity shall be documented in the daily report. For example, concrete reinforcing steel and masonry reinforcing steel shall each have their own daily report.
- Only one inspection subcategory activity shall be documented in the daily report. For example, structural steel erection and welding shall each have their own daily report.
- Revisions to the approved construction documents, including any sketch, detail, engineering analysis, designs, and calculations shall be signed and stamped by a Nevada registered design professional and approved by CCDDS-BD, and shall be attached to the daily report if 8 ½ x 11 or 11 x 17 and referenced if larger than 11x 17 in the daily report.

7.1.3 Frequency

- The special inspector shall write a daily report for each day he/she is on the project

site.

- The special inspector shall comply with the BAC 22.02.525 (B) 2.

7.1.4 Review & Approval

- Reports shall be reviewed and approved per the agency QSM procedure and shall be reviewed by the CCDDS-BD.

7.2 Non-Compliance Report (BAC 22.02.525)

7.2.1 Author

- Printed Name
- Original Signature

7.2.2 Content

- Reports shall be handwritten.
- Reports shall be numbered sequentially for each category as per the attached Inspection Report Designation Numbering System guideline.
- The report must be a stand alone document, and shall be maintained on site.
- Non-compliance reports shall have their own section, divided into separate categories, numbered sequentially for each category.
- The report shall contain the permit number, the project address, date, and a description of the specific area or equipment inspected (gridlines or other methods to clearly identify the area or equipment).
- This report shall contain a detailed description of the deficient condition. This report is to be written immediately upon finding such deficiency. The inspector shall state why the item is in non-compliance.
- The non-compliance report shall reference the daily report number.
- A separate non-compliance report shall be written for each type of non-complying item/condition.

7.2.3 Frequency

- The special inspector shall comply with the BAC 22.02.525, and shall immediately notify the contractor of the condition.

7.2.4 Review & Approval

- Reports must be reviewed and approved per the agency QSM procedure and shall be reviewed by the CCDDS-BD.

7.3 Record of Correction (BAC 22.02.525)

7.3.1 Author

- Printed Name
- Original Signature

7.3.2 Content

- Reports shall be handwritten.
- The report must be a stand alone document, and shall be maintained on site.
- The report must contain the permit number, the project address, date, and a description of the area inspected (gridlines or other method to clearly identify the area).
- Record of correction reports shall be included in the non-compliance section. It shall be numbered identically to, and make reference to, the noncompliance it is

clearing.

- One record of correction item per report.
- The inspector must state the current condition of the item.
- The inspector must state how the condition has been resolved and that the work is in compliance with CCDDS-BD approved resolution to the construction documents, including any daily reports generated by reinspection.
- Record of correction reports shall be accompanied by the approved structural revision including any sketch, detail, engineering analysis, and calculations approved by CCDDS-BD that were needed to clear the non-compliance report. Sheets larger than 11x17 may be referenced only.
- The report shall also identify and describe the re-inspection/testing process, results and location, if applicable.

7.3.3 Frequency

- A record of correction shall be written when a reported non-compliance item/condition has been addressed by the engineer of record and approved by CCDDS-BD staff or reinspected.

7.3.4 Review & Approval

- Reports must be reviewed and approved per the agency QSM procedure, and shall be reviewed by the CCDDS-BD.

7.4 Area Acceptance Report (BAC 22.02.525)

7.4.1 Author

- Printed Name
- Original Signature

7.4.2 Content

- Reports shall be handwritten.
- The report must contain the permit number, the project address, and date.
- The report must be a stand alone document, and shall be maintained on site.
- The area acceptance report shall be included in the daily report category and be numbered sequentially per the attached Inspection Report Designation Numbering System guideline.
- The report must identify the area accepted (gridlines or other method to clearly identify the area).
- The report must reference the daily reports and state that all the work performed in the area specified is in compliance with the approved construction documents.
- An area acceptance report for each category is to be written for each level/floor of work completed.

7.4.3 Frequency

- Area acceptance reports for each category must be included in each section. Area acceptance reports shall be furnished to CCDDS-BD staff, when requested, for the structural portion of the work performed.

7.4.4 Review & Approval

- Reports must be reviewed and approved per the agency QSM procedure, and shall be reviewed by the CCDDS-BD.

7.5 Inspection Completion Report (BAC 22.02.525)

7.5.1 Author

- Printed Name
- Original Signature

7.5.2 Content

- The report must contain the permit number, the project address, and date.
- The report must be a stand alone document.
- The report must reference the daily reports, any non-compliance report and the corresponding record of correction, and state that all the work performed is in compliance with the approved construction documents.

7.5.3 Frequency

- Each category must have its own inspection completion report.
- This document must be the last report within each category to be presented in the final report.

7.5.4 Review and Approval

- Reports must be reviewed and approved per the agency QSM procedure, and shall be reviewed by the CCDDS-BD.

8.0 RECORDS:

8.1 Daily inspection reports, test data, non-compliance reports, record of corrections, inspection completion report, and area acceptance reports, when applicable, shall be included in the Final Report.

9.0 ATTACHMENTS:

Inspection Report Designation System (IBC)

10.0 REVISION HISTORY:

Title	Revision/Approved Date	Effective Date
TRG-Daily	February 1, 2010	February 12, 2010
TRG-Daily	October 10, 2008	October 17, 2008
TRG-Daily	July 26, 2006	July 28, 2006
TRG-Daily	February 27, 2006	March 15, 2006

The following is a summary of Field Inspection Report designation system. This system is based on special inspection categories and subcategories in Technical Guideline TG-17. This system is to be used by special inspection personnel on all reports, including daily and final reports.

Column 1 - Types of construction that may require special inspection. **NOTE:** Designations used for the various field activities are for report numbering only and are not intended to correspond to approval categories.

Column 2 - Final Report Section

Column 3 - Report Numbering System: **CONSTRUCTION TYPE+REPORT NUMBER** (examples: C-C-1, C-R-1, S-W-1, M-B-1). All reports must be sequentially numbered, i.e., 1, 2, 3, etc., within the same construction type. For example, C-C and C-P and C-B reports all begin with report number 1.

(1) Construction Type (Field Activity)	(2) Final Report Section	(3) Daily Report Numbering System
Concrete placement	C	C-C(-1, -2, -3,... etc.)
Post-tensioned (PT) steel for elevated slabs & structural PT Slab-On-Ground (S.O.G.) designed with >150 psi prestress (C-P)		C-P(-1, -2, -3,... etc.)
Mild reinforcing steel (C-R)		C-R(-1, -2, -3,... etc.)
Bolts and other embedded items (C-B)		C-B(-1, -2, -3,... etc.)
Reinforcing & Post-tensioned steel for S.O.G. (C-R)		C-R(-1, -2, -3,... etc.)
Epoxy bolts, epoxy bars and wedge anchors (C-E)		C-E(-1, -2, -3,... etc.)
Shotcrete (C-S)		C-S(-1, -2, -3,... etc.)
Fabrication of concrete cylinders, including base-plate grout samples, & verification tests (C-T)		Chain of Custody/Test Results Sheets
Masonry Materials (M)	M	M(-1, -2, -3,... etc.)
Reinforcing steel (M-R)		M-R(-1, -2, -3,... etc.)
Masonry Grouting (M-G)		M-G(-1, -2, -3,... etc.)
Bolts and other embedded items (M-B)		M-B(-1, -2, -3,... etc.)
Epoxy bolts, epoxy bars, and wedge anchors (C-E)		M-E(-1, -2, -3,... etc.)
Fabrication of prisms & grout cubes (M-T)		Chain of Custody/Test Results Sheets
Welding (S-W)	S	S-W(-1, -2, -3,... etc.)
High Strength Bolting (S-HB)		S-HB(-1, -2, -3,... etc.)
Structural steel (S-S)		S-S(-1, -2, -3,... etc.)
NDT using Radiography method (RT)		RT(-1, -2, -3,... etc.)
NDT using Magnetic Particle method (MT)		MT(-1, -2, -3,... etc.)
NDT using Liquid Penetrant method (PT)		PT(-1, -2, -3,... etc.)
NDT using Ultrasonic method (UT)		UT(-1, -2, -3,... etc.)
Fireproofing (F)	F	F(-1, -2, -3,... etc.)
		Chain of Custody/Test Results Sheets
Soils (G)	G	G(-1, -2, -3,... etc.)
Rock Retaining Walls (G-RW)		G-RW(-1, -2, -3,... etc.)
Soils Field Density Tests (G-T)		G-T(-1, -2, -3,... etc.)
Drilled Piers & Drilled Piles (R)	R	R(-1, -2, -3,... etc.)
Driven Piles (X)	X	X(-1, -2, -3,... etc.)
Inspection of special cases construction (X)	X	X(-1, -2, -3,... etc.)
Smoke Control (K)	K	K(-1, -2, -3,... etc.)
Test and Balance (K-TAB)	TAB	K-TAB(-1, -2, -3,... etc.)
Garage Ventilation Systems (O)	O	O(-1, -2, -3,... etc.)
Amusement Rides and Transportation Systems (A)	A	A(-1, -2, -3,... etc.)
Wood Field (W)	W	W(-1, -2, -3,... etc.)
Exterior Insulation Finish System Field (E)	E	E(-1, -2, -3,... etc.)

EXAMPLES:

C-C-1, C-C-2 C-P-1, C-P-2, C-R-1, C-R-2 are daily reports for concrete placement (C-C), PT (C-P) and mild reinforcing (C-R)

M-1, M-2, M-R-1, M-R-2, M-R-3, M-G-1, M-G-2 are daily reports for masonry materials (M), reinforcing (M-R) and grouting (M-G)

NCR-C-R-1, NCR-C-R-2, NCR-C-C-1, NCR-C-C-2 are non-compliance reports for reinforcing steel (C-R) and concrete placement (C-C)

RCR-C-R-1 is a record-of-correction report documenting resolution of NCR-C-R-1



Department of Development Services

Building Division

4701 W. Russell Rd • Las Vegas NV 89118
(702) 455-3000

Ronald L. Lynn, Director/Building Official • Gregory J. Franklin, Assistant Director

SUBJECT: TRG-C – Concrete Verification & Daily Reporting Requirements

1.0 PURPOSE: The purpose of this Technical Reporting Guideline is to specify minimum daily reporting requirements during the performance of special inspection activities. A Daily Report is required under section 22.02.525 (B) 2 of the Clark County Building Administrative Code, and shall be presented in the Final Report per Technical Guideline 50.

2.0 SCOPE: The prime agency and special inspector shall prepare specific reports and other documents for submission to the Building Official as outlined in this guideline. These reports are required at specific stages during the construction of projects that require special inspection. The intent of these reports is to provide the results of the visual inspections & material tests that verify work requiring special inspection was inspected, and found to be in compliance with the approved construction documents, and Clark County Building Administrative Code.

3.0 ABBREVIATIONS & ACRONYMS



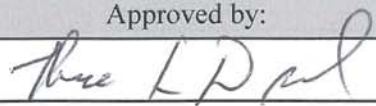
ACI:	American Concrete Institute
ASTM:	American Society for Testing and Materials
BAC:	Building Administrative Code
CCDDS-BD	Clark County Department of Development Services-Building Division
IBC:	International Building Code
PTM	Post Tension Manual
SNA-IBC:	Southern Nevada Amendments to the International Building Code
TG:	Technical Guideline
TRG:	Technical Reporting Guideline

4.0 DEFINITIONS

For the purposes of this technical reporting guideline certain terms, phrases, words and their derivatives shall be construed as specified in this section, the technical codes and the Building Administrative Code of Clark County.

Approved Revisions: Changes made to the original construction documentation, which have been submitted to CCDDS-BD for review and are accepted.

APPROVED DATE: February 1, 2010
EFFECTIVE DATE: February 12, 2010

Written by:	Concurred by:	Approved by:
		
Brian P. Lenihan, P.E. Senior Engineer	David L. Durkee, P.E. Principal Engineer	Theodore L. Droessler, P.E. Manager of Engineering

Construction Documents: Plans, specifications, supporting calculations and other data prepared to describe the design, materials, physical characteristics, location, orientation, and scope of a proposed project necessary to obtain a permit.

Daily Report: A report that includes all inspections, observations, testing activity, non-compliances, area acceptance reports, etc. that took place on a specific day.

Special Inspector: An inspector, employed by a quality assurance agency, which has demonstrated his/her competence to the satisfaction of the Building Official, has achieved and maintained national certification(s), and meets the requirements of TG-17.

Technical Reporting Guideline: A guideline that provides inspection responsibilities and daily reporting requirements.

5.0 REFERENCES:

BAC, Clark County Building Administrative Code
IBC, International Building Code
ACI 318, Building Code Requirements of Structural Concrete
PTM, Post-Tensioning Institute Post-Tensioning Manual
PTM, Post-Tensioning Institute Slab on Grade Manual
Technical Guidelines

6.0 RESPONSIBILITIES:

6.1 Special Inspector Responsibilities

6.1.1 Pre-Concrete Placement Inspection

- The special inspector shall verify that Pad Certifications or Final Grading Reports have been approved by CCDDS-BD, when applicable.
- Verify surface conditions comply with the approved soils report, when applicable.
- Verify foundations and structural elements comply with the approved construction documents, to include but not limited to size, depth, approximate elevation, floor/level, approximate gridline location, and cleanliness, when applicable.
- Verify structural hardware and/or anchor bolts installed and inspected comply with the approved construction documents.
- Verify reinforcing steel has been correctly installed for the amount, size, length, grade, lap lengths, spacing, position, type, any reinforcing steel couplers, and clearances is per the approved construction documents.
- Post tension cable placement inspection shall verify the type, grade, size, length, profile, and clearance. The special inspector shall verify that the contractor has installed the live and dead ends to comply with the approved construction documents.
- Verify embed elements comply with the approved construction documents for placement, size, embedment and that they are fabricated by a CCDDS-BD approved fabricator or approved product. Inspection of embed elements which are from an unapproved fabricator must follow TRG-S requirements.
- Verification of welding of rebar, deck welding, button punching, or headed studs must be inspected by a CCDDS-BD approved steel inspector and must be reported per TRG-S.

6.1.2 Concrete Placement Inspection

- Verify the preconcrete placement inspection has been approved.
- Verify placement area is clean and free of all debris, trash, soils, etc.
- Verify mix design for the concrete or shotcrete to be used is CCDDS-BD approved and for the intended use.
- Verify each concrete load meets the CCDDS-BD approved mix design. Perform the required material testing per the applicable ACI & ASTM standards, IBC, and the approved construction documents.
- Verify the curing operations are per ACI 318 specifications.
- Verify the shotcrete nozzleman certification for the shotcrete placement.
- Verify ambient weather conditions.
- Verify contractor has properly consolidated the concrete per approved construction documents.

6.1.3 Post Tension Stressing Inspection

- Verify concrete placement is free of rock pockets or voids.
- Verify calibration of tendon stressing equipment.
- Verify minimum concrete compressive strength (f'_c) has been achieved.
- Monitor the stressing crew to verify that they perform the operations in accordance with the PTM Chapter 6, and the approved construction documents.
- Verify that the method used to grout the ducts complies with the PTM Chapter 6, and the approved construction documents.

6.1.4 Post-Installed Adhesive or Mechanical Rebar/Dowel/Embed/Anchor Inspection

- Verify embed elements comply with the approved construction documents for placement, size, embedment and that they are (fabricated by a CCDDS-BD approved fabricator). Inspection of embed elements which are from an unapproved fabricator must follow TRG-S requirements.
- Verify the expiration date of the adhesive being used.
- Verify adhesive used complies with the approved construction documents
- Verify the location of existing reinforcing steel and/or post-tension tendons prior to drilling.
- Verify depth, diameter, and cleanliness of the drilled hole.
- Verify installation of the rebar/dowel, embed element, or anchor complies with the approved construction documents.
- Verify the adhesive installation procedures are performed per the manufactures specifications, when applicable.

7.0 PROCEDURE:

7.1 Concrete Daily Inspection Reporting (IBC Chapter 19 & 1704.4, BAC 22.02.525 (B) 2)

- Document reinforcing steel, note the sheet & detail numbers, and state the gridlines or location of the reinforcing steel inspected. Document that the grade, lap splice, clearances, and cleanliness is per the approved construction documents.
- Document structural hardware, to include any rebar couplers, anchor bolts, etc, is installed per the approved construction documents. Document the sheet & detail numbers, and state the gridlines or location of the hardware installed. Document

any embed elements installed. Document source for all fabricated or manufactured items, when applicable.

- Document structural concrete and/or shotcrete placed and inspected. Document the CCDDS-BD approved mix design(s) used at the project. Document the amount of concrete placed, slump, temperature, area(s) of placement, sample locations, and the ambient weather conditions. All concrete test results must be filed on site with the daily reports. Document the amount of shotcrete placed, slump, temperature, area(s) of placement, and sample locations. Reference the preconcrete placement inspection report.
- Document pre-stressing and/or post tension tendons placed and inspected. Document the sheet & detail numbers, and state the gridlines or location of the post tension tendons. Document stressing operations which must include: the required elongation length, measured elongation, elongation deviation, gauge pressure attained, and any other information about the individual tendon. Document the concrete compressive strength and the sample identification.
- Document the calibration of tendon stressing equipment.
- Document the method used to grout the ducts.
- Document post-installed rebar/dowel inspection for residential projects on Form 811. For commercial projects the special inspector may use either a company daily inspector report or Form 811. The special inspector must provide the same information required on Form 811 onto the daily report.
- Document when overhead post-installed of rebar/dowels/anchors are installed, reference the installation procedures, and any required equipment.

8.0 RECORDS:

8.1 Daily inspection reports, test data, non-compliance reports, record of corrections, inspection completion report, and area acceptance reports, when applicable, shall be included in the Final Report.

9.0 ATTACHMENTS:

Adhesive Anchorage of Rods/Bolts (Form 811)

10.0 REVISION HISTORY:

Title	Revision/Approved Date	Effective Date
TRG-C	February 1, 2010	February 12, 2010
TRG-C	October 10, 2008	October 17, 2008
TRG-C	February 27, 2006	March 15, 2006



Development Services Building Division

4701 W. Russell Rd • Las Vegas NV 89118
(702) 455-3000 • Fax (702) 221-0630

Ronald L. Lynn, Director/Building Official

Report No.	
Page	of
Inspection Date	
Permit No.	

POST-INSTALLED ADHESIVE ANCHORAGE CLEARANCE REPORT

Project Address:		Lot:		Block:	
Development Name:					
Quality Assurance Agency:		Owner/Agent:			
Owner/Agent Signature:					Date:
CCBD Inspector Initials					Date:

1ST INSTALLATION INSPECTION SUMMARY

INSPECTION ITEM	RESULTS	INSPECTION ITEM	RESULTS
CCDDS-BD Plan Approval Date:		Quantity of Rods/Bolts Installed:	
CCDDS-BD Plan Sheet & Detail		Hole Depth & Diameter:	
Adhesive Product Name:		Anchor Diameter, Type & Length:	
Adhesive Expiration Date:		Anchor Embedment Depth:	
Evaluation Report No. & Date:		Anchor Spacing	
Concrete Type and Strength		Anchor Edge Distance	
Concrete Thickness & Temp (°F)		Time of Installation & t cure,full (time till full cure)	
Hole Cleaning Procedure			

The special inspector must be present at the time the bolt is torqued.

LOCATIONS OF ROD/BOLT & ADDITIONAL INSPECTION INFORMATION

I hereby acknowledge that I have reviewed the approved plans, applicable evaluation report, and manufacturers' installation instructions. I inspected the products and observed the product installation. The anchor installation has been verified to be in accordance with the manufacturer's published instructions, the above referenced evaluation report and the Clark County approved plans.

SPECIAL INSPECTOR (PRINTED)	
SPECIAL INSPECTOR (SIGNATURE)	DATE

ENGINEER STAMP HERE

Return completed certification to Clark County Department of
Development Services – Building Division

Form 811a
Eff. 03/29/10

DISTRIBUTION:

1. JOB FILE

2. OWNER

3. CLARK COUNTY

4. QUALITY MANAGER



Development Services Building Division

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(702) 455-3000 • Fax (702) 221-0630

Ronald L. Lynn, Director/Building Official

Report No.	
Page	of
Inspection Date	
Permit No.	

POST-INSTALLED ADHESIVE ANCHORAGE CLEARANCE REPORT

Project Address:		Lot:		Block:	
Development Name:					
Quality Assurance Agency:		Owner/Agent:			
Owner/Agent Signature:					Date:
CCBD Inspector Initials					Date:

2ND INSTALLATION INSPECTION SUMMARY

INSPECTION INFORMATION	RESULTS
Time of Torquing & t cure (time elapsed)	
Quantity Installed & Type:	
Tightening Torque for Each Bolt	
Reference the 1 st Installation Inspection Summary Reports	
Serial Number of the Torque Wrench and Date of Calibration	

The special inspector must be present at the time the bolt is torqued.

LOCATIONS OF ROD/BOLT & ADDITIONAL INSPECTION INFORMATION

I hereby acknowledge that I have reviewed the approved plans, applicable evaluation report, and manufacturers' installation instructions. I inspected the products and observed the product installation. The anchor installation has been verified to be in accordance with the manufacturer's published instructions, the above referenced evaluation report and the Clark County approved plans.

SPECIAL INSPECTOR (PRINTED)	
SPECIAL INSPECTOR (SIGNATURE)	DATE

ENGINEER STAMP HERE

Return completed certification to Clark County Department of
Development Services – Building Division

POST-INSTALLED ADHESIVE ANCHOR CLEARANCE PROCEDURE

SPECIAL CASES: C-E

THIS FORM IS AVAILABLE AT THE CLARK COUNTY DEPARTMENT OF DEVELOPMENT SERVICES
BUILDING DIVISION WEB SITE AND LISTED PRIME AGENCIES

1. The clearance report shall be used for post installed adhesive anchorage systems as identified in the approved plans and used as an alternate to the specified cast-in-place anchor.
2. The quality assurance agency special inspector shall complete the report for the work performed and leave a copy with the general contractor or permit holder. (At this point an engineer from the special inspection agency will not have sealed the report.)
3. The special inspector must be present at the time the bolt is torqued.
4. After the 1st and 2nd inspection has been completed, the report shall be given to the Clark County Department of Development Services Building Division (CCDDS-BD) Inspector as assurance that adhesive anchorage system installations have been inspected and accepted by the Quality Assurance Agency (QAA), prior to or at shear wall inspection.
5. The CCDDS-BD inspector shall initial the reports then place the reports into a designated basket in the inspections office. The designated basket will be located at the public counter.
6. A Building Permit Specialist shall enter the clearance requirement for adhesive anchorage into the required inspection screen for the permit listed on the form. The clearance shall be established at the hold point prior to a framing inspection.
7. The structural group will review and disposition the engineer sealed adhesive anchorage report. Both the field copies and the engineered sealed copies must be received by CCDDS-BD staff prior to the removal of the hold point.
8. The engineer sealed reports form shall be sent to CCDDS-BD records by the CCDDS-BD staff.

Adhesive Anchorage of Rods/Bolts Form - Web Address

http://dsnet.co.clark.nv.us/dsweb/bldg_pdfforms/qaa_rodsboltsreport.pdf



Development Services Building Division

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(702) 455-3000 • Fax (702) 221-0630

Ronald L. Lynn, Director/Building Official

Report No.	
Page	of
Inspection Date	
Permit No.	

POST-INSTALLED MECHANICAL ANCHORAGE CLEARANCE REPORT

Project Address:		Lot:		Block:	
Development Name:					
Quality Assurance Agency:		Owner/Agent:			
Owner/Agent Signature:					Date:
CCBD Inspector Initials					Date:

INSTALLATION INSPECTION SUMMARY

INSPECTION ITEM	RESULTS	INSPECTION ITEM	RESULTS
CCDDS-BD Plan Approval Date:		Quantity of Rods/Bolts Installed:	
CCDDS-BD Plan Sheet & Detail		Hole Depth & Diameter:	
Mechanical Product Name:		Anchor Diameter, Type & Length:	
Evaluation Report No. & Date:		Anchor Embedment Depth:	
Concrete Type and Strength		Anchor Spacing	
Concrete Thickness		Anchor Edge Distance	
Tightening Torque for Each Bolt			
Hole Cleaning Procedure			

LOCATIONS OF ROD/BOLT & ADDITIONAL INSPECTION INFORMATION

I hereby acknowledge that I have reviewed the approved plans, applicable evaluation report, and manufacturers' installation instructions. I inspected the products and observed the product installation. The anchor installation has been verified to be in accordance with the manufacturer's published instructions, the above referenced evaluation report and the Clark County approved plans.

SPECIAL INSPECTOR (PRINTED)	
SPECIAL INSPECTOR (SIGNATURE)	DATE

Return completed certification to Clark County Department of
Development Services – Building Division

ENGINEER STAMP HERE

POST-INSTALLED MECHANICAL ANCHOR CLEARANCE PROCEDURE

SPECIAL CASES: C-E

THIS FORM IS AVAILABLE AT THE CLARK COUNTY DEPARTMENT OF DEVELOPMENT SERVICES
BUILDING DIVISION WEB SITE AND LISTED PRIME AGENCIES

1. The clearance report shall be used for post-installed mechanical anchorage systems as identified in the approved plans and used as an alternate to the specified cast-in-place anchor.
2. The quality assurance agency special inspector shall complete the report for the work performed and leave a copy with the general contractor or permit holder. (At this point an engineer from the special inspection agency will not have sealed the report.)
3. The report shall be given to the Clark County Department of Development Services Building Division (CCDDS-BD) Inspector as assurance that mechanical anchorage system installations have been inspected and accepted by the Quality Assurance Agency (QAA), prior to or at shear wall inspection.
4. The CCDDS-BD inspector shall initial the report then place the report into a designated basket in the inspections office. The designated basket will be located at the public counter.
5. A Building Permit Specialist shall enter the clearance requirement for mechanical anchorage into the required inspection screen for the permit listed on the form. The clearance shall be established at the hold point prior to a framing inspection.
6. The structural group will review and disposition the engineer sealed mechanical anchorage report. Both the field copy and the engineered sealed copy must be received by CCDDS-BD staff prior to the removal of the hold point.
7. The engineer sealed report form shall be sent to CCDDS-BD records by the CCDDS-BD staff.

Mechanical Anchorage of Rods/Bolts Form - Web Address

http://dsnet.co.clark.nv.us/dsweb/bldg_pdfforms/qaa_rodsboltsreport.pdf



Department of Development Services

Building Division

4701 W. Russell Rd • Las Vegas NV 89118

(702) 455-3000

Ronald L. Lynn, Director/Building Official • Gregory J. Franklin, Assistant Director

SUBJECT: TRG-M – Masonry Verification & Daily Reporting Requirements

1.0 PURPOSE: The purpose of this Technical Reporting Guideline is to specify minimum daily reporting requirements during the performance of special inspection activities. A Daily Report is required under section 22.02.525 (B) 2 of the Clark County Building Administrative Code, and shall be presented in the Final Report per Technical Guideline 50.

2.0 SCOPE: The prime agency and special inspector shall prepare specific reports and other documents for submission to the Building Official as outlined in this guideline. These reports are required at specific stages during the construction of projects that require special inspection. The intent of these reports is to provide the results of the visual inspections & material tests that verify work requiring special inspection was inspected and found to be in compliance with the approved construction documents and the Clark County Building Administrative Code.

3.0 ABBREVIATIONS & ACRONYMS


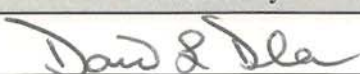
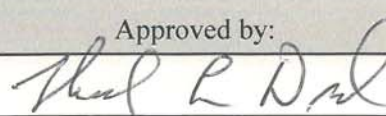
BAC:	Building Administrative Code
CCDDS-BD	Clark County Department of Development Services-Building Division
IBC:	International Building Code
QAA:	Quality Assurance Agency
SNA-IBC:	Southern Nevada Amendments to the International Building Code
TG:	Technical Guideline
TRG:	Technical Reporting Guideline

4.0 DEFINITIONS

For the purposes of this technical reporting guideline certain terms, phrases, words and their derivatives shall be construed as specified in this section, the technical codes and the Building Administrative Code of Clark County.

Approved Revisions: Changes made to the original construction documentation, which have been submitted to CCDDS-BD for review and are accepted.

APPROVED DATE: February 1, 2010
EFFECTIVE DATE: February 12, 2010

Written by:	Concurred by:	Approved by:
		
Brian P. Lenihan, P.E. Senior Engineer	David L. Durkee, P.E. Principal Engineer	Theodore L. Droessler, P.E. Manager of Engineering

Construction Documents: Plans, specifications, supporting calculations and other data prepared to describe the design, materials, physical characteristics, location, orientation, and scope of a proposed project necessary to obtain a permit.

Daily Report: A report that includes all inspections, observations, testing activity, non-compliances, area acceptance reports, etc. that took place on a specific day.

Special Inspector: An inspector, employed by a quality assurance agency, which has demonstrated his/her competence to the satisfaction of the Building Official, has achieved and maintained national certification(s), and meets the requirements of TG-17.

Technical Reporting Guideline: A guideline that provides inspection responsibilities and daily reporting requirements.

5.0 REFERENCES:

BAC, Clark County Building Administrative Code
IBC, International Building Code
ACI 530, Building Code Requirements for Masonry Structures
Technical Guidelines

6.0 RESPONSIBILITIES:

6.1 Quality Assurance Agency

- The engineering manager shall verify the level of quality assurance and inspection needed for the type of structure: occupancy category of the structure, see IBC Table 1604.5 & Section 1708 for additional information.

6.2 Special Inspector

- Perform the required level of inspection per the IBC, and applicable codes..
- Verify the reinforcing steel has been correctly installed for the amount, size, length, lap lengths, spacing, position, type, grade, any reinforcing steel couplers, ties, required bends, support and securing of reinforcing steel against displacement is per the approved construction documents.
- Verify the embed elements comply with the approved construction documents for placement, size, embedment length, and that they are fabricated by a CCDDS-BD approved fabricator. Inspection of embed elements which are from an unapproved fabricator must follow TRG-S requirements.
- Verify grout is a CCDDS-BD approved Mix Design when the grout specified design strength exceeds 2500 psi.
- Verify grout has been properly consolidated per the approved construction documents.

7.0 PROCEDURE:

7.1 Masonry Daily Inspection Reporting (IBC Chapter 21 & 1704.5, BAC 22.02.525 (B) 2)

- State the level of quality assurance and special inspection performed on the first masonry inspection daily report.
- Document the CMU placement, size, and condition. Document the location of the inspection activities including gridlines, elevation or lift, and height of lift.
- Document the reinforcing steel, note the sheet & detail numbers, and gridlines or location

- of the reinforcing steel inspected. Document grade, lap splice, ties, clearances, and cleanliness as per the approved construction documents.
- Document structural hardware, to include any rebar couplers, embed plates, etc, was installed per the approved construction documents. Document the sheet & detail numbers, and state the gridlines or location of the embed elements installed. Document source for all fabricated or manufactured items, when applicable.
 - Document the masonry grout placed and inspected. Document the CCDDS-BD approved mix design(s) used at the project when applicable. Document the amount of grout placed, flowability, area(s) of placement, temperature when sampled. Document that the grout has been properly consolidated as per the approved construction documents. Document pour height and lift or elevation the grout was placed at. Document where clean-outs are required and used. All material test results must be filed on site with the daily reports. Reference the reinforcing steel reports and structural hardware inspection.
 - Document the construction of the masonry prisms per ACI 530.
 - Document ambient weather conditions.

8.0 RECORDS:

8.1 Daily inspection reports, test data, non-compliance reports, record of corrections, inspection completion report, and area acceptance reports, when applicable, shall be included in the Final Report.

9.0 ATTACHMENTS:

None.

10.0 REVISION HISTORY:

Title	Revision/Approved Date	Effective Date
TRG-M	February 1, 2010	February 12, 2010
TRG-M	October 10, 2008	October 17, 2008
TRG-M	February 27, 2006	March 15, 2006



Department of Development Services

Building Division

4701 W. Russell Rd • Las Vegas NV 89118
(702) 455-3000

Ronald L. Lynn, Director/Building Official • Gregory J. Franklin, Assistant Director

SUBJECT: TRG-S – Structural Steel Verification & Daily Reporting Requirements



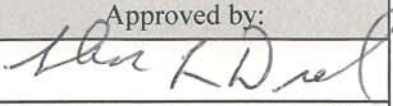
1.0 PURPOSE: The purpose of this Technical Reporting Guideline is to specify minimum daily reporting requirements during the performance of special inspection activities. A Daily Report is required under section 22.02.525 (B) 2 of the Clark County Building Administrative Code, and shall be presented in the Final Report per Technical Guideline 50.

2.0 SCOPE: The prime agency and special inspector shall prepare specific reports and other documents for submission to the Building Official as outlined in this guideline. These reports are required at specific stages during the construction of projects that require special inspection. The intent of these reports is to provide the results of the visual inspections & material tests that verify work requiring special inspection was inspected and found to be in compliance with the approved construction documents and the Clark County Building Administrative Code.

3.0 ABBREVIATIONS & ACRONYMS

AISC:	American Institute of Steel Construction
ASTM:	American Society for Testing and Materials
AWS:	American Welding Society
BAC:	Building Administrative Code
CCDDS-BD	Clark County Department of Development Services-Building Division
CWI:	Certified Welding Inspector
IBC:	International Building Code
NDT:	Non-destructive Testing
QAA:	Quality Assurance Agency
RCSC:	Research Council on Structural Connections
SNA-IBC:	Southern Nevada Amendments to the International Building Code
TG:	Technical Guideline
TRG:	Technical Reporting Guideline
WPS:	Welding Procedure Specification
WQR:	Welder Qualification Record

APPROVED DATE: February 1, 2010
EFFECTIVE DATE: February 12, 2010

Written by:	Concurred by:	Approved by:
		
Brian P. Lenihan, P.E. Senior Engineer	David L. Durkee, P.E. Principal Engineer	Theodore L. Droessler, P.E. Manager of Engineering

4.0 DEFINITIONS

For the purposes of this technical reporting guideline certain terms, phrases, words, and their derivatives shall be construed as specified in this section, the technical codes, and the Building Administrative Code of Clark County.

Approved Fabricator: A fabricator/manufacturer approved by the Building Official to perform special inspections/testing on their own premises as outlined in the company's quality systems manual.

Construction Documents: Plans, specifications, supporting calculations and other data prepared to describe the design, materials, physical characteristics, location, orientation, and scope of a proposed project necessary to obtain a permit.

Daily Report: A report that includes all inspections, observations, testing activity, non-compliances, area acceptance reports, etc. that took place on a specific day.

Manufactures Test Report/Mill Certification: A testing report record from the original steel producer/manufacturer that indicates the following information for a given heat number:

1. Product Type
2. Product Size
3. Chemical Properties
4. Physical Properties
5. Specification Designation and Grade

Non-Approved Fabricator: A fabricator/manufacturer that does not meet the requirements of the Clark County Building Administrative Code, Section 22.02. 535 or has not been granted a "Project Specific Approval" by the Building Official.

Special Inspector: An inspector, employed by a quality assurance agency, which has demonstrated his/her competence to the satisfaction of the Building Official, has achieved and maintained national certification(s), and meets the requirements of TG-17.

Technical Reporting Guideline: A guideline that provides inspection responsibilities and daily reporting requirements.

Welder Update Letter: The document which shows that a field welder has not had a lapse in welding, greater than six months for the welding process qualified.

Welder Qualification Record: The document used to identify a welders ability to produce sound welds.

5.0 REFERENCES:

BAC, Clark County Building Administrative Code
IBC, International Building Code
Technical Guidelines
D1.1 AWS, American Welding Society Structural Steel Welding Code
D1.3 AWS, American Welding Society Structural Sheet Steel Welding Code
D1.4 AWS, American Welding Society Structural Reinforcing Steel Welding Code
D1.8 AWS, American Welding Society Structural Welding Code Seismic Supplement
AISC, American Institute of Steel Construction Code of Standard Practice

6.0 RESPONSIBILITIES:

6.1 Quality Assurance Agency

- It is the responsibility of the QAA to perform fabrication/erection verification/inspection to ensure that the structural member and connections are in compliance with the governing building codes, approved construction documents, and to impose the limits of the code of standard practice of AISC, when specified with in the approved construction documents.
- Use testing equipment that has current calibration records, as evidenced by a valid calibration sticker and a copy of the current calibration record with the equipment.
- All structural items supplied by a Clark County approved fabricator shall have shop inspection documentation made available upon request. A copy of the certification of compliance documentation shall be supplied to the contractor and to the QAA.
- All structural items provided by a non-approved fabricator shall have complete fabrication/erection inspection/verification performed by a CCDDS-BD approved QAA.
- Changes made to the original construction documentation, which have been submitted to CCDDS-BD for review and are accepted.

6.2 Special Inspector

6.2.1 Structural Steel Erection

- Verify that the steel fabricator is a CCDDS-BD approved fabricator.
- For structural steel from an unapproved fabricator verify or provide inspections, by a CCDDS-BD approved special inspection agency, for 100% of the steel members, shop welds, and components, including any required NDT. The fabricator shall provide the agency with copies of the following.
 - I. Welder certification
 - II. Mill certifications
 - III. Welding procedures
 - IV. Registered Design Professional of record reviewed shop drawings
 - V. A letter from the fabricator's registered engineer or Company President certifying that the above documentation was used in fabricating the elements in question and that all supplied fabricated items conform to the approved construction documents, applicable building codes and the requirements of AWS and AISC.
- Verify member size, location, details are per the approved construction documents.
- Perform a random inspection of a minimum of 5% of the shop welds and components for all approved fabricators, as required in IBC 1704.2.2.
- Structural steel shall be physically identified as required in IBC 2203.
- Structural steel identified to more than one recognized standard shall be welded to the most restrictive standard.

6.2.1.1 Column Base Plates & Bearing Plates

- The steel inspector shall verify the height of the high strength grouting under the base and/or bearing plates is per the approved construction documents.
- Verify placement area is clean and free of all debris, trash, soils, etc.

- Grouting shall be in accordance with the approved construction documents.
- Observation inspection and material testing is required during material mixing and sample preparation at time of placement under base plates.
- Material testing to be performed in accordance with the applicable ASTM standards. A Clark County approved special inspector (minimum C-SOG approval) shall perform the observation and material testing.
- The steel inspector must verify the post placement of the high strength grouting under the base and/or bearing plates.

6.2.2 Structural Welding

- Verify the welders name and review their WQR and applicable welder update letter to ensure he/she is currently qualified for the welding to be performed. Verification of the qualified welders to be checked daily.
- Verify that welding electrodes are properly stored per AWS D1.1 requirements
- Verify that the welding is in compliance with WPS requirements for the welding operation.
- Review the weld filler material certificate of compliance.
- Verify steel materials comply with the approved construction documents, applicable building codes, AISC and AWS guidelines.
- Verify the joint type, size, length, and location of the welds and that all welds conform to the requirements of AWS and to the approved construction documents. The size and contour of welds shall be measured with a suitable gauge.
- Inspection of all welding of structural steel shall comply with the minimum requirements of AWS.
- Observe performance of each welder to ensure compliance to the applicable WPS requirements and the approved construction documents.
- Provide full time inspection of all full and partial penetration groove welds, single pass fillet welds greater than 5/16" and multi-pass fillet welds.
- Perform ultrasonic/radiographic NDT inspection on all full and partial penetration *groove welds, of primary structural members with a material thickness equal to or greater than 5/16", to verify proper weld penetration and weld soundness. (*Excluding Single Flare & Flare V Joints)
- Verify the ambient weather conditions comply AWS guidelines.

6.2.2.1 Button Punching, Shot Pins

- Button punching shall conform to the approved construction documents.
- Shot pins shall conform to the approved construction documents and the manufacturer's requirements.

6.2.2.2 Welded Headed or Threaded Stud Anchors

- Verify the anchor welding through decking or onto supporting structural members, the procedure, the studs, and the quality control requirements shall conform to applicable provisions of AWS D1.1 code.
- Verify and provide a copy of the headed or threaded stud anchors certificate of compliance

- Verify and document whether the welding type performed is automatic or manual process. If manual welding is used, verify AWS D1.1 requirements for manual welding are followed.

6.2.3 High Strength Bolting

- Review and provide a copy of the high strength bolt material certificate of compliance to ensure conformance to the approved construction documents.
- Verify size, lot number, and type of fastener assembly.
- Verify fastener assembly used is per the approved construction documents and complies with AISC requirements.
- Verify the fastener assembly suitability and pretensioning method used, develops a pretension equal to or greater than 1.05 times the tension specified by AISC. This is accomplished by using a Tension Measuring Device and testing the number of bolts required by AISC.
- Verify bolt tension indicating device calibration is up to date.
- Verify proper connection and surface condition is per the approved construction documents and AISC.
- Verify type of tensioning wrench and current calibration for each day/shift of operation.
- Verify proper tensioning method was used and the work performed meets the minimum requirements of AISC.
- Verify contractor has performed the tensioning of the bolts per AISC approved sequence and/or the approved construction documents.
- Verify all High Strength Bolting installation and tensioning operations are in accordance with the applicable building codes, approved construction documents.

6.2.3.1 High Strength Bolting Inspection Procedure

- The special inspector shall observe the required testing of the fastener assembly tensioning method and Direct Tension Indicator (When Applicable) per IBC and AISC requirements
- The special inspector shall observe the installation method and any additional testing that may be required to meet and the approved construction documents prior to initial start-up of High Strength Bolting operations.
- The special inspector shall be present during the installation and tensioning of High Strength Bolts. The special inspector shall perform full time inspections and verify that the threads are excluded from the shear plane when design is identified in the approved plans and/or specifications as A-325-X or A-490-X.
- The special inspector shall be present during the tensioning of High Strength Bolts per IBC and AISC.
- The arbitration inspection procedure in AISC shall be used when High Strength Bolts in slip critical connections, subject to direct tension loads, have been installed without special inspection and a disagreement exists as to the minimum tension of the installed bolts.
- The special inspector shall request a written clarification from the Registered Design Professional of record, addressing the tensioning method to be used for

the designed High Strength Bolted connection, when the connection type is unclear or not stated in the approved construction documents.

- Any High Strength Bolting that is found to be in non-compliance with the applicable building codes and/or approved construction documents shall be brought to the immediate attention of the contractor and the Building Official in writing.
- Any High Strength Bolting non-conformance shall be corrected or repaired and re-inspected to ensure compliance to the applicable building codes, approved engineer letter/detail, and the approved construction documents.

6.2.4 Bolting other than those recognized in the RCSC

- Inspect the bolts for grade, location, size, and quantities. Ensure that the connection plies are in firm contact and the bolts are snug tight and fully engaged.
- Verify the type of fastener assembly.
- Verify all Non-High Strength Bolting installation and tensioning operations are in accordance with the applicable building codes, approved construction documents and manufacturers recommendations.

6.2.4.1 Bolting Procedure

- The special inspector shall observe the installation method and any testing that may be required to meet the applicable building codes, approved construction documents, and manufactures recommendations, prior to initial start-up of Bolting operations.
- Any bolting that is found to be in non-compliance with the applicable building codes, approved construction documents and manufacturers recommendations shall be brought to the immediate attention of the contractor and the Building Official in writing.
- Any bolting non-conformance shall be corrected or repaired and re-inspected, to ensure compliance to the applicable building codes, approved engineer letter/detail, approved construction documents and manufacturers recommendations.

7.0 PROCEDURE:

7.1 Steel Daily Inspection Reporting (IBC Chapter 22 & 1704.3, BAC 22.02.525 (B) 2)

7.1.1 Structural Steel Erection

- Daily Inspection reports shall clearly describe the inspection process, testing, and acceptance of structural members and assemblies. This report shall also identify the fabricator, fabricated structural items supplied, location of the areas that are acceptable, approved plans date, drawing sheet and detail, and shall note that the structural steel has been erected visually plumb and level. Where required above, structural elements must be documented and show comparison to approved construction documents, and meets the AISC code.
- The steel inspector shall document the height of the high strength grouting under the base and/or bearing plates is per the approved construction documents.
- Document the fabricators' CCDDS-BD approved fabricator status.

- Document joint grid location, elevation, detail, and page number as shown on the approved construction documents used to perform the special inspection activities.
- The report shall be kept in a designated area for review by CCDDS-BD staff.

7.1.1.1 Column Base Plates and Bearing Plates

- Document that the placement area is clean and free of all debris, trash, soils, etc.
- Document daily inspection and testing of the base and/or bearing plate grouting. The inspector shall reference the specific location of the areas inspected.
- The steel special inspector shall write an area acceptance report, as required, stating that the base and/or bearing plates have been grouted per the approved construction documents.
- The report shall be kept in a designated area for review by CCDDS-BD staff.

7.1.2 Structural Steel Welding

- Document that the WQR has been reviewed and recorded on Form 829.
- *Document the welder's name who performed the welding for the inspections performed that day. (* For Periodic inspections, identify the welder's name who was observed during each periodic inspection visit).
- Document that the WPS's has been reviewed and identify the WPS identification number on the daily report.
- Document the joined materials ASTM designation.
- Document the welding process used the joint type and weld filler metal used.
- Document welded connections comply with the applicable AWS code, approved construction documents and applicable building codes.
- Document the number of tests and testing methods were performed to applicable provisions of the applicable AWS code.
- For Sheet Steel, document that the button punching and/or shot pins conforms to the approved construction documents and the manufacturer's requirements.
- For threaded or Headed Studs, document if the anchors were manually or auto welded. If manually welded, document that the WQR has been reviewed and recorded on Form 829. Document the welding process used, the WPS identification number, the welder's name who performed the welding and that the studs were prepared and the attachment weld conforms to AWS D1.1 requirements.
- The inspection report must identify the specific locations inspected and any drawing details and page numbers used to verify compliance to the approved construction documents.
- The report shall be kept in a designated area for review by CCDDS-BD staff.
- Document ambient weather conditions.

7.1.6 High Strength Bolting

- The QAA shall document all High Strength Bolting inspections and testing operations that are conducted on the project each day.
- Document the fastener assembly type and verify the surface condition of the

connection has been inspected and complies with AISC requirements.

- Document the Tension Measuring Device testing of the High Strength Bolts and Direct Tension Indicators (If Applicable) and note the calibration date of the equipment used.
- Document size, lot number, type of fastener assembly for each diameter and length.
- Provide a copy of the certificate of compliance for the fastener assembly used and the Direct Tension Indicators (If Applicable) to verify compliance to the approved construction documents.
- Document the connection is in compliance with the approved construction documents and AISC has been inspected. Reference bolt ASTM specification and connection type as either X, N, or SC.
- Document tensioning method that was used and that the work performed complies with AISC requirements.
- Document the tensioning wrenches were calibration on each day/shift of operation.
- The report shall be kept in a designated area for review by CCDDS-BD staff.

7.1.7 Bolting other than those recognized in the RCSC

- Document the bolts installed and the tensioning method complies with the approved construction documents.
- Document surface condition of the fastener assembly has been inspected and complies with AISC requirements.
- The report shall be kept in a designated area for review by CCDDS-BD staff.

8.0 RECORDS:

- 8.1** Daily inspection reports, test data, non-compliance reports, record of corrections, inspection completion report, area acceptance reports, and WQR verification form #829, when applicable, shall be included in the Final Report.
- 8.2** A legible copy of the welders' qualification record, front and back of card when applicable, shall be placed in a binder in alphabetical order by individual by company and kept on the jobsite at all times. At the conclusion of the project the QAA firm shall retain the welders' qualification records, for a two year period after the final report has been accepted by Clark County.
- 8.3** A legible copy of the welding procedure specification shall be placed in a binder in order by company and kept on the jobsite at all times. At the conclusion of the project the QAA firm shall retain the welding procedure specification, for a two year period after the final report has been accepted by Clark County.

9.0 ATTACHMENTS:

Appendix A: Welding Qualification Record (Form 829)

10.0 REVISION HISTORY:

Title	Revision/Approved Date	Effective Date
TRG-S	February 1, 2010	February 12, 2010
TRG-S	October 10, 2008	October 17, 2008
TRG-S	July 26, 2006	July 28, 2006
TRG-S	February 27, 2006	March , 2006



Department of Development Services

Building Division

4701 W Russell Rd. • Las Vegas NV 89118
(702) 455-3000 • Fax (702) 221-0630

Ronald L. Lynn, Director/Building Official • Gregory J. Franklin, Assistant Director

WELDER QUALIFICATION RECORD (WQR) VERIFICATION

QAA Company _____ Project Name _____

Project Address _____ Permit Number _____

Company performing the welding _____

Welder Name	Qualified Welding Process	Qualified Thickness & Position	Original Qualification Date	Update Letter Date

The inspector shall review all Welder Qualification Records (WQR) to verify that the welder is qualified to weld using the welding process qualified, the joint types, materials and material thicknesses specified in the approved project plans. The inspector shall also review welder documentation to verify that the welder's qualification is current and is in accordance with the applicable AWS welding code. The inspector certifies, by signing and dating this form, that he or she has reviewed and verified the WQR information is complete and in compliance with Clark County codes and the applicable AWS welding code.

Inspector Name _____ Signature _____ Date _____

***Note:** This form shall be included in the QAA's final report. WQR documents are not required to be included in the QAA's final report, but are required to be maintained in the QAA's project files for future reference.*



Department of Development Services

Building Division

4701 W. Russell Rd • Las Vegas NV 89118
(702) 455-3000

Ronald L. Lynn, Director/Building Official • Gregory J. Franklin, Assistant Director

SUBJECT: TRG-W – Wood Verification & Daily Reporting Requirements

1.0 PURPOSE: The purpose of this Technical Reporting Guideline is to specify minimum daily reporting requirements during the performance of special inspection activities. A Daily Report is required under section 22.02.525 (B) 2 of the Clark County Building Administrative Code, and shall be presented in the Final Report per Technical Guideline 50.

2.0 SCOPE: The prime agency and special inspector shall prepare specific reports and other documents for submission to the Building Official as outlined in this guideline. These reports are required at specific stages during the construction of projects that require special inspection. The intent of these reports is to provide the results of the visual inspections & material tests that verify work requiring special inspection was inspected and found to be in compliance with the approved construction documents and the Clark County Building Administrative Code.

3.0 ABBREVIATIONS & ACRONYMS


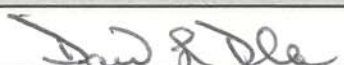

BAC:	Building Administrative Code
CCDDS-BD	Clark County Department of Development Services-Building Division
IBC:	International Building Code
QAA:	Quality Assurance Agency
SNA-IBC:	Southern Nevada Amendments to the International Building Code
TG:	Technical Guideline
TRG:	Technical Reporting Guideline

4.0 DEFINITIONS

For the purposes of this technical reporting guideline certain terms, phrases, words, and their derivatives shall be construed as specified in this section, the technical codes and the Building Administrative Code of Clark County.

Approved Revisions: Changes made to the original construction documentation, which have been accepted by CCDDS-BD.

APPROVED DATE: February 1, 2010
EFFECTIVE DATE: February 12, 2010

Written by:	Concurred by:	Approved by:
		
Brian P. Lenihan, P.E. Senior Engineer	David L. Durkee, P.E. Principal Engineer	Theodore L. Droessler, P.E. Manager of Engineering

Construction Documents: Plans, specifications, supporting calculations and other data prepared to describe the design, materials, physical characteristics, location, orientation, and scope of a proposed project necessary to obtain a permit.

Daily Report: A report that includes all inspections, observations, testing activity, non-compliances, area acceptance reports, etc. that took place on a specific day.

Load Path: The path taken by vertical or lateral force acting on a building. Loads are transferred by the elements in the building and by the connections between those elements into the foundations.

Special Inspector: An inspector, employed by a quality assurance agency, which has demonstrated his/her competence to the satisfaction of the Building Official, has achieved and maintained national certification(s), and meets the requirements of TG-17.

Technical Reporting Guideline: A guideline that provides inspection responsibilities and daily reporting requirements.

5.0 REFERENCES:

BAC, Clark County Building Administrative Code
IBC, International Building Code
Technical Guidelines (TG-16, 17, 20, 50, 70)

6.0 RESPONSIBILITIES:

6.1 Special Inspector

6.1.1 Wood special inspection is required per IBC sections 1704.6 and 1707.3, the special inspector and QAA shall comply with Clark County Development Services code interpretation BD-CI-027.

6.1.2 Wood framing inspection

- Identify continuous load path from the roof down to the foundation.
- Anchor bolts and holdowns must be inspected for diameter, length, embedment, location and spacing (performed by a CCDDS-BD approved inspector per TRG-C).
- Obtain applicable ICC ES reports and manufacturer installation instructions and verify the construction materials meet the requirements of the approved construction documents; those materials may be sheathing materials, framing wood members, nails, metal straps, holdowns, and all other hardware. The inspector shall inspect the wood members for grade, size, species, and placement within the structure.
- Inspect the placement of studs, trimmers, headers, drag struts, trusses, diaphragms, panels, nails, hardware, and all other framing elements per the approved construction documents.
- Verify hole size and notch size in wood framing elements are within tolerances specified in the adopted code or as detailed on the approved construction documents.

6.1.3 Material verification includes products that are required to have special inspection during manufacture or fabrication in accordance with IBC code sections 1704.6 and 1704.2. Approved fabricators are the exception to special inspection and are maintained on a listing published by the Building Division. The special inspector shall issue a notice of non-compliance for all items from unapproved fabricators. A registered design professional shall provide a CCDDS approved work plan to the special inspector. The special inspector shall perform their inspections per the work plan and include it with the final report.

6.1.4 Inspection of the diaphragm shall consist of the sheathing type and orientation relative to framing, connections (fasteners, fastener patterns), subdiaphragm anchorage to concrete or

masonry walls, diaphragm attachment to collectors, and collector attachment to shear wall lines.

6.1.5 Inspection of shear walls shall consist of the sheathing type and orientation relative to framing, connections (fasteners, fastener patterns), and anchorage to floor/foundation.

6.1.6 The special inspector shall review and perform inspection activities based on the following

- Approved construction documents
- Truss layout plan(s) and trusses
- Individual truss manufacturing specification sheet
- Evaluation Service Report
- Manufacturer installation instructions
- Applicable codes
- Product Standard

7.0 PROCEDURE:

7.1 Wood Daily Inspection Reporting (IBC Chapter 23, 1704.6, 1707.3, BAC 22.02.525 (B) 2)

7.1.1 Document each component of the load path from the roof to the foundation, and provide a statement that the load path is continuous.

7.1.2 Wood framing inspection

- Document framing and sheathing materials for grade, thickness, dimensions, species, location, and nailing pattern.
- Document hardware installed.

7.1.3 Document each diaphragm type separately within the body of the daily inspection report. Documentation of the collectors and drag struts must be included as a section in the diaphragm report. The inspector shall document the sheathing type and orientation relative to framing, connections (fasteners, fastener patterns), subdiaphragm anchorage to concrete or masonry walls, diaphragm attachment to collectors and collector attachment to shear wall lines.

7.1.4 Document each shear wall type separately within the body of the daily inspection report. The inspector shall document the sheathing type and orientation relative to framing, connections (fasteners, fastener patterns), anchorage to foundations (*tie-down*) and floor ties.

7.1.5 Approved fabricator verification is required for:

- Light gauge pre-engineered metal trusses and walls
- Collector and drag strut hardware
- Floor and foundation tie hardware
- Metal plate connected wood trusses
- Manufactured shear walls

In the event that the fabricator is not CCDDS-BD approved the inspector is required to generate an NCR and contact CCDDS-BD & the structural engineer to provide a CCDDS-BD approved work plan.

8.0 RECORDS:

8.1 Daily inspection reports, test data, non-compliance reports, record of corrections, inspection completion report, and area acceptance reports, when applicable, shall be included in the Final Report.

9.0 ATTACHMENTS:

Wood Special Inspection Report (Form 838)

10.0 REVISION HISTORY:

Title	Revision/Approved Date	Effective Date
TRG-W	February 1, 2010	February 12, 2010
TRG-W	October 10, 2008	October 17, 2008
TRG-W	July 26, 2006	July 28, 2006
TRG-W	February 27, 2006	March 15, 2006



Development Services Building Division

4701 W. Russell Rd • Las Vegas NV 89118
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Ronald L. Lynn, Director/Building Official
Gregory J. Franklin, Assistant Director

Inspection Date	
Permit No.	

WOOD SPECIAL INSPECTION REPORT

Project Address:		Lot:		Block:	
Development Name:					
Quality Assurance Agency:		Owner/Agent:			

Our firm performed the wood special inspection services for the above listed project. All items requiring the wood special inspection are in compliance with the Clark County Department of Development Services – Building Division approved construction documents and the quality assurance agency special inspection agreement, excluding the noted exceptions.

Only CCDDS-BD approved special inspectors were utilized to perform those specific inspections as required by the Quality Assurance Agency Special Inspection Agreement. The daily inspection reports and other applicable reports will be included with the Final Report to be issued when all of the special inspection services are completed.

Exceptions:

Quality Manager / Engineering Manager / Item W inspector

Return completed report to Clark County Department of
Development Services – Building Division

WOOD SPECIAL INSPECTION REPORT PROCEDURE

Item W

THIS FORM IS AVAILABLE AT THE CLARK COUNTY DEPARTMENT OF DEVELOPMENT SERVICES
BUILDING DIVISION WEB SITE AND LISTED PRIME AGENCIES

1. The clearance report shall be used for wood special inspection as identified in the approved construction documents.
2. The structural group will review and disposition the wood special inspection report.
3. The report form shall be sent to CCDDS-BD records by the CCDDS-BD staff.

Wood Special Inspection Form - Web Address

http://dsnet.co.clark.nv.us/dsweb/bldg_pdfforms/Form 838.pdf



Department of Development Services

Building Division

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(702) 455-3000

Ronald L. Lynn, Director/Building Official • Gregory J. Franklin, Assistant Director

SUBJECT: TRG-F – Fireproofing Verification & Daily Reporting Requirements

1.0 PURPOSE: The purpose of this Technical Reporting Guideline is to specify minimum daily reporting requirements during the performance of special inspection activities. A Daily Report is required under section 22.02.525 (B) 2 of the Clark County Building Administrative Code, and shall be presented in the Final Report per Technical Guideline 50.

2.0 SCOPE: The prime agency and special inspector shall prepare specific reports and other documents for submission to the Building Official as outlined in this guideline. These reports are required at specific stages during the construction of projects that require special inspection. The intent of these reports is to provide the results of the visual inspections & material tests that verify work requiring special inspection was inspected, and found to be in compliance with the approved construction documents, and Clark County Code.

3.0 ABBREVIATIONS & ACRONYMS


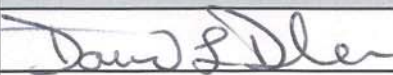

BAC:	Building Administrative Code
CCDDS-BD	Clark County Department of Development Services-Building Division
IBC:	International Building Code
QAA:	Quality Assurance Agency
SNA-IBC:	Southern Nevada Amendments to the International Building Code
TG:	Technical Guideline
TRG:	Technical Reporting Guideline
AWCI:	Association of the Wall and Ceiling Industry
UL:	Underwriters Laboratories Inc. ®

4.0 DEFINITIONS

For the purposes of this technical reporting guideline certain terms, phrases, words and their derivatives shall be construed as specified in this section, the technical codes and the Building Administrative Code of Clark County.

Approved Revisions: Changes made to the original construction documentation, which have been submitted to CCDDS-BD for review and are accepted.

APPROVED DATE: February 1, 2010
EFFECTIVE DATE: February 12, 2010

Written by:	Concurred by:	Approved by:
		
Brian P. Lenihan, P.E. Senior Engineer	David L. Durkee, P.E. Principal Engineer	Theodore L. Droessler, P.E. Manager of Engineering

Construction Documents: Plans, specifications, supporting calculations and other data prepared to describe the design, materials, physical characteristics, location, orientation, and scope of a proposed project necessary to obtain a permit.

Daily Report: A report that includes all inspections, observations, testing activity, non-compliances, area acceptance reports, etc. that took place on a specific day.

Special Inspector: An inspector, employed by a quality assurance agency, which has demonstrated his/her, competence to the satisfaction of the Building Official, has achieved and maintained national certification(s), and meets the requirements of TG-17.

Technical Reporting Guideline: A guideline that provides inspection responsibilities and daily reporting requirements.

5.0 REFERENCES:

BAC, Clark County Building Administrative Code
IBC, International Building Code
Southern Nevada Amendments to the IBC (SNBC) Technical Guidelines (TG-16, 17, 20, 50)
ASTM specification E605, E736, E759, E760, and E761
AWCI Technical Manual 12-A – Standard Practice for the Testing and Inspection of Field Applied Sprayed Fire-Resistive Materials (SFRM); an Annotated Guide
AWCI Technical Manual 12-B – Standard Practice for the Testing and Inspection of Field Applied Thin-Film Intumescent Fire-Resistive Materials (TFIFRM); an Annotated Guide

6.0 RESPONSIBILITIES:

6.1 Special Inspection Responsibilities

- Use the most recent approved construction documents.
- Maintain copies of all inspections and laboratory reports at the job site until all special inspection and/or testing is completed.
- Verify the site conditions (i.e., beam sizes, type of material, fire rating, etc.) are per the CCDDS-BD approved construction documents.
- Verify the structural steel assemblies, for the areas to be fireproofed, have been inspected, area acceptance reports issued, and CCDDS approval obtained prior to proceeding.
- Verify type of material and application process meets the approved construction documents and the manufacturer's specifications.
- Identify the members to be fireproofed and the minimum required coverage and thickness.
- Verify that the proposed materials are of the type specified, are properly stored and have been approved by the registered design professional in charge and the building official.
- Verify that the substrate has been properly prepared and free of conditions (e.g. oil, dirt, scale, loose paint or primer and other materials) which may prevent adequate adhesion.
- Verify the substrate condition meets the ASTM requirements prior to application, to include substrate temperature. The substrate inspection is valid for a 24 hour period; reinspection is required after the 24 hour period expires.

- Determine the required type and frequency of tests to be performed.
- Observe the sampling, field testing and fabrication of test specimens.
- Verify the condition of the finished application (i.e. minimum required coverage and thickness of the fireproofing).
- Verify the thickness of the coatings comply with the approved construction documents and/or the published fire-resistance design from an acceptable testing agency (e.g. UL Fire Resistance Directory).
- Verify the expiration date of material to be used has not been reached.
- Special inspections shall be performed after the rough installation of electrical, automatic sprinkler, mechanical and plumbing systems and suspension systems for ceilings to verify fireproofing has not been damaged or removed, where applicable.

6.1.1 Sprayed Fire-Resistant Materials Special Inspection Responsibilities

- All measurements shall be made in accordance with the applicable codes, technical guidelines, and ASTM specifications.
- Sampling shall be taken from in-place materials only and not an alternate source which is not a part of the actual structure.
- Verify the coating use (internal or external) complies with the manufacturer's specifications and the approved construction documents.
- A minimum ambient and substrate temperature of 40°F shall be maintained during and for a minimum of 24 hours after application of the SFRM, unless otherwise recommended by the SFRM manufacturer.

6.1.2 Mastic and Intumescent Fire-Resistant Coatings Special Inspection Responsibilities

- Verify the application method complies with the manufacturer's specifications.
- Verify the coating use (internal or external) complies with the manufacturer's specifications and the approved construction documents.
- Verify primer complies with the manufacturer's specifications when required.
- Verify fire coating and final color coating complies with the manufacturer's specifications.
- A minimum temperature of 50°F shall be maintained during and for a minimum of 72 hours after application of the TFIFRM, unless otherwise recommended by the TFIFRM manufacturer.

7.0 PROCEDURE:

7.1 Fireproofing Daily Inspection Reporting (IBC Chapter 22 & 1704.10, BAC 22.02.525 (B) 2)

- Document that the site conditions (i.e. beam sizes, type of material, fire rating, etc) are per the CCDDS-BD approved construction documents.
- Document that the substrate condition meets the ASTM criteria prior to application, to include substrate temperature.
- Document the ambient temperature prior to the application of material.
- Document that the application method complies with the manufacturer's specifications. Reference the substrate inspection report.
- Record the thickness measurements as per ASTM requirements, test samples taken and bond strength, noting all grid line locations, as well as vertical location, where work is taking place. (All measurements to be in US units)

- Document the type of material and application process meets the approved construction documents. Document the expiration date of material used.
- 7.1.1** Sprayed Fire-Resistant Materials Special Inspection Responsibilities
- Maintain copies of all inspections and laboratory reports at the job site until all special inspection and/or testing is completed.
 - Document all areas have been properly repaired where samples were taken.
- 7.1.2** Mastic and Intumescent Fire-Resistant Coatings Special Inspection Responsibilities
- Document the coating use (internal or external).
 - Document the coating UL identification.
 - Document the thickness of the coatings, and state the hourly rating per the UL Fire Resistance Directory.
 - Document that the primer layer (when applied), fire coating, and final color coating complies with the manufacturer's specifications and the CCDDS approved construction documents.

8.0 RECORDS:

- 8.1** Daily inspection reports, test data, non-compliance reports, record of corrections, inspection completion report, and area acceptance reports, when applicable, shall be included in the Final Report.

9.0 ATTACHMENTS:

10.0 REVISION HISTORY:

Title	Revision/Approved Date	Effective Date
TRG-F	February 1, 2010	February 12, 2010
TRG-F	October 10, 2008	October 17, 2008
TRG-F	February 27, 2006	March 15, 2006



Department of Development Services

Building Division

4701 W. Russell Rd • Las Vegas NV 89118
(702) 455-3000

Ronald L. Lynn, Director/Building Official • Gregory J. Franklin, Assistant Director

SUBJECT: TRG-E – EIFS and Exterior Architectural Features and Steel Framing of Walls Verification & Daily Reporting Requirements


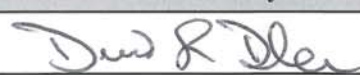
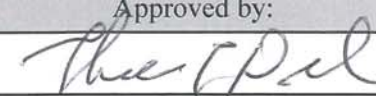
1.0 PURPOSE: The purpose of this Technical Reporting Guideline is to specify minimum daily reporting requirements during the performance of special inspection activities. A Daily Report is required under section 22.02.525 (B) 2 of the Clark County Building Administrative Code, and shall be presented in the Final Report per Technical Guideline 50.

2.0 SCOPE: The prime agency and special inspector shall prepare specific reports and other documents for submission to the Building Official as outlined in this guideline. These reports are required at specific stages during the construction of projects that require special inspection. The intent of these reports is to provide the results of the visual inspections and material tests that verify work requiring special inspection was inspected, and found to be in compliance with the approved construction documents, ES Reports and Clark County Code. Item E is required for high-rise construction and structures with assembly or mercantile occupancies.

3.0 ABBREVIATIONS & ACRONYMS

BAC:	Clark County Building Administrative Code
CCDDS-BD:	Clark County Department of Development Services-Building Division
EIFS:	Exterior Insulation and Finish Systems
IBC:	International Building Code
ICC ES:	ICC Evaluation Service
QAA:	Quality Assurance Agency
SNA-IBC:	Southern Nevada Amendments to the International Building Code
TG:	Technical Guideline
TRG:	Technical Reporting Guideline

APPROVED DATE: February 1, 2010
EFFECTIVE DATE: February 12, 2010

Written by:	Concurred by:	Approved by:
		
Brian P. Lenihan, P.E. Senior Engineer	David L. Durkee, P.E. Principal Engineer	Theodore L. Droessler, P.E. Manager of Engineering

4.0 DEFINITIONS

For the purposes of this technical reporting guideline certain terms, phrases, words and their derivatives shall be construed as specified in this section, the technical codes, and the Clark County Building Administrative Code.

Daily Report: A report which documents inspections, observations, testing activity, non-compliances, area acceptance reports, etc. that took place on a specific day.

Exterior Architectural Features: Aspects of the construction defined on the architectural drawings and detailed on the shop drawings which deviate from and are attached to or through the plane of the EIFS or the curtain wall panel.

Technical Reporting Guideline: A guideline which identifies inspection responsibilities and daily reporting requirements.

5.0 REFERENCES:

Clark County Building Administrative Code
International Building Code
Technical Guidelines (TG-16, 17, 20, 50)

6.0 RESPONSIBILITIES:

6.1 Special Inspector

- Maintain copies of all inspections and laboratory reports at the job site until all special inspection and/or testing is completed.
- During inspection of glazing, coatings, finishes, etc, periodic inspection is allowed. The special inspector must issue a daily inspection report prior to the placement of the next material/finish.

6.1.1 EIFS

- Verify assembly of the EIFS materials for the system meets the approved construction documents.
- Verify attachment of the EIFS assembly to the structure is in compliance with the approved construction documents.
- Verify frame construction and the attachment of the frame to the structure. Welding must be inspected and reported per TRG-S.
- Continuous special inspection is required for hand mixed materials. Periodic special inspection is allowed when the batching equipment has measured control of materials and calibration can be achieved.

6.1.2 Exterior Architectural Features

- Anchor system and holdowns must be inspected for type, diameter, length, embedment, location and spacing per approved construction documents.
- Verify the construction materials meet the requirements of the approved construction documents.

6.1.3 Curtain Walls, Exterior Cladding, and Glazing Components

6.1.3.1 Anchorage

- Anchor system must be inspected for type, diameter, length, embedment, location and spacing per construction documents.

- Verify the connection of curtain walls, exterior cladding and glazing components to the structure complies with the approved construction documents.

6.1.3.2 Frame

- Verify the construction materials meet the requirements of the approved construction documents.
- Verify the frame was constructed per the approved construction documents. Verify the dimensions of the frame.
- Verify the placement of studs, trimmers, headers, drag struts, trusses, diaphragms, panels, fasteners, hardware, and all other framing elements per the approved construction documents.
- Verify that the allowable hole size and notch size in framing elements is within tolerances of applicable code.
- Verify the sill track and its installation is per the approved construction documents.
- Perform NDT and/or torque testing for the panel to connection hardware and the connection hardware to the building.
- Verify the EIFS panel inserts are attached and sealed per the approved construction documents.

7.0 PROCEDURE:

7.1 Exterior Insulation and Finish Systems Daily Inspection Reporting (IBC 1704.12, BAC 22.02.525 (B) 2)

7.1.1 EIFS

- Document the EIFS ICC ES Report number.
- Document that the EIFS assembly complies with the ICC ES Report.
- Document each EIFS assembly type separately within the body of the daily inspection report. Identify and document the EIFS assembly installed location (floor, gridlines, etc).
- Document the EIFS assembly installation for compliance with the ICC ES Report and approved construction documents.
- Collect the completed installation cards. The installation cards shall be included in the final inspection report.
- Document all penetrations.
- Provide an Area Acceptance Report when all trades have completed their work.

7.1.2 Exterior Architectural Features

- Document the anchor system for type, diameter, length, embedment, location and spacing.
- Document the construction materials for compliance with the approved construction documents.

7.1.2 Curtain Walls, Exterior Cladding, and Glazing Components

- Document framing and construction materials for grade, thickness, dimensions, type, location, fastening pattern and fastening system.
- Document that the materials installed comply with the approved construction documents.
- Document that the installation of the curtain walls, exterior cladding and glazing

components to the structure complies with the approved construction documents.

- Document that the frame was constructed per the approved construction documents.
- Document that the sill track and its installation is per the approved construction documents.
- Document the performance of the NDT and/or torque testing for the panel to connection hardware and the connection hardware to the building.
- Document that the EIFS panel inserts are attached and sealed per the approved construction documents.
- The connection of the panel to the structural element shall be performed by the M,C,S inspector.

7.1.3.1 Anchors

- Document the anchor system for type, diameter, length, embedment, location and spacing.

7.1.3.2 Frame

- Document the fabrication inspection.

7.2 Approved fabricator verification is required for:

- Light gauge pre-engineered components
- Connection hardware

In the event that the fabricator is not CCDDS-BD approved, the inspector is required to generate an NCR. The curtain wall design engineer is to provide a work plan such that verification of the fabricated materials and assembled panels can be performed by the assigned inspector.

8.0 RECORDS:

8.1 Daily inspection reports, test data, non-compliance reports, record of corrections, inspection completion reports, area acceptance reports and ES reports, when applicable, shall be included in the Final Report.

9.0 ATTACHMENTS:

Sealant Installer Installation Card
EIFS Contractor Installation Card
Water-Resistive Coating Installation Card
Responsibility Drawing

10.0 REVISION HISTORY:

Title	Revision/Approved Date	Effective Date
TRG-E	February 1, 2010	February 12, 2010
TRG-E	October 10, 2008	October 17, 2008
TRG-E	September 12, 2008	September 19, 2008

EXHIBIT A

[EIFS CONTRACTOR NAME]

Completion Date: _____

THE EXTERIOR INSULATION AND FINISH SYSTEM (EIFS) INSTALLED ON THE STRUCTURE LOCATED AT THE ADDRESS INDICATED BELOW:

_____ CONFORMS

TO [EIFS MANUFACTURER NAME] RECOMMENDED INSTALLATION PRACTICES AND SECTION (S) _____ OF ICC-ES, INC., EVALUATION REPORT ESR-_____.

Address of Structure: _____

Product Component Names:

_____	Adhesive(s) _____
_____	Fasteners (mech) _____
_____	Base Coat _____
_____	Reinforcing Mesh _____
_____	Finish Coat(s) _____

INSTALLATION

CONFORMS

A. Substrate Type and Tolerance _____

B. Weather-resistive Barrier _____

C. EIFS

1. Adhesive and/or Fasteners _____

2. Insulation _____

3. Reinforcing Mesh _____

4. Base Coat _____

5. Finish _____

D. The information entered above is offered in testimony that the EIFS installation conforms with the EIFS manufacturer's installation methods and procedures, and the EIFS manufacturer's ES report.

NOTE: An installation card must be received from the Sealant Installer indicating that the sealant installation conforms with the EIFS evaluation report and sealant manufacturer's installation methods and procedures must accompany this declaration.

EIFS

Contractor Company Name and Address:

Signature of Responsible Officer: _____

Typed Name and Title of Officer: _____

Telephone Number: (_____) _____

cc: Original: Building Department
Copy: EIFS

(Must be submitted with sealant Manufacturer installer declaration.)

EXHIBIT B

[SEALANT INSTALLER NAME]

Completion Date: _____

THE SEALANT INSTALLED IN CONJUNCTION WITH AN EXTERIOR INSULATION AND FINISH SYSTEM (EIFS) INSTALLED ON THE STRUCTURE LOCATED AT THE ADDRESS INDICATED BELOW:

CONFORMS _____

TO [EIFS MANUFACTURER NAME] AND [SEALANT MANUFACTURER'S NAME] RECOMMENDED INSTALLATION PRACTICES AND SECTION(S) _____ OF ICC-ES, INC., EVALUATION REPORT ESR-_____.

Address of Structure:

Product Component Names:

Primer(s) _____
Sealers _____
Bond Breakers _____
Sealant Materials _____

INSTALLATION

CONFORMS

- A. Designer's requirements, details and instructions
B. Sealant manufacturer's details and requirements
C. Exterior insulation manufacturer's requirements

- D. The information entered above is offered in testimony that the Sealant installation conforms with the sealant manufacturer's installation methods and procedures, and the EIFS manufacturer's evaluation report.

Sealant Installer Company Name and Address:

Signature of Responsible Officer: _____
Typed Name and Title of Officer: _____
Telephone Number: (____) _____

cc: Original: Building Department (Must be submitted with EIFS contractor declaration.)
Copies: EIFS Manufacturer
EIFS Contractor
Sealant Manufacturer

EXHIBIT C

[WATER-RESISTIVE COATING CONTRACTOR NAME]

Completion Date: _____

THE WATER-RESISTIVE COATING INSTALLED ON THE STRUCTURE LOCATED AT THE ADDRESS INDICATED BELOW:

_____ CONFORMS

TO [WATER-RESISTIVE COATING MANUFACTURER NAME] RECOMMENDED INSTALLATION PRACTICES AND SECTION(S) _____ OF EVALUATION REPORT ESR-_____

Address of Structure:

Product Component Names:

Reinforcing Fabric _____
Coating _____

INSTALLATION

CONFORMS

A. Substrate Type and Tolerance

B. Water-resistive Coating

C. The information entered above is offered in testimony that the water-resistive coating application conforms with the manufacturer's installation methods and procedures, and the water-resistive manufacturer's evaluation report.

NOTE: An installation card must be received from the water-resistive coating installer indicating that the water-resistive coating application conforms with the water-resistive coating evaluation report and water-resistive coating manufacturer's installation methods and procedures must accompany this declaration.

Water-resistive Coating Contractor Company Name and Address:

Signature of Responsible Officer: _____

Typed Name and Title of Officer: _____

Telephone Number: (____) _____

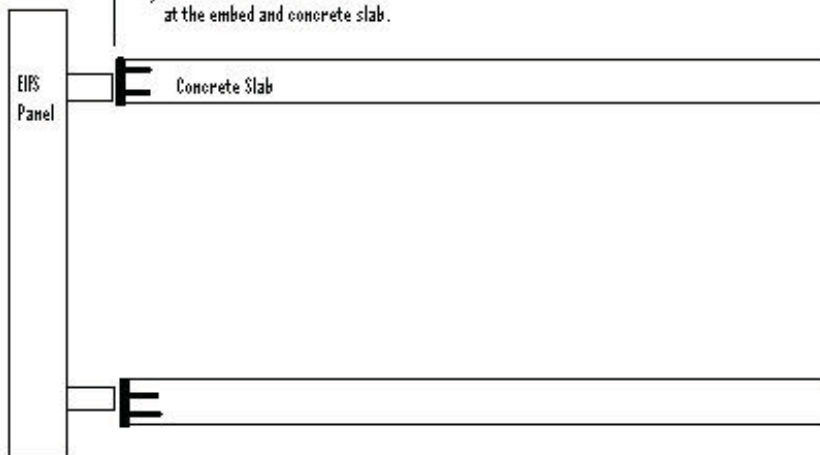
cc: Original: Building Department

Copy: Water-resistive Coating Manufacturer

Item E Inspection



Items S, C Inspections terminate
at the embed and concrete slab.





Department of Development Services

Building Division

4701 W. Russell Rd • Las Vegas NV 89118
(702) 455-3000 • Fax (702) 221-0630

Ronald L. Lynn, Director/Building Official • Gregory J. Franklin, Assistant Director

SUBJECT: TRG-K – Smoke-Control System(s) Verification & Special Inspections Daily Activity Reporting Requirements

1.0 PURPOSE: The purpose of this Technical Reporting Guideline is to specify minimum Smoke-Control System(s) special inspections daily activity reporting requirements during the performance of special inspection activities. A special inspections daily activity report is required under section 22.02.525 (B) 2 of the Clark County Building Administrative Code (BAC), and shall be provided in the MQAA Final Report per Technical Guideline 50.

2.0 SCOPE: The prime agency and special inspector shall prepare specific reports and other documents for submission to the Building Official as outlined in this guideline. These reports are required at specific stages during the construction of projects that require special inspection. The intent of these reports is to provide the results of the visual inspections & component and systems tests that verify work requiring special inspection was inspected and found to be in compliance with the approved construction documents and the BAC.


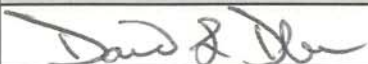

3.0 ABBREVIATIONS & ACRONYMS

CCDDS-BD: Clark County Department of Development Services-Building Division
FPR: Fire Protection Report
IBC: International Building Code
MQAA: Mechanical Quality Assurance Agency
QAA: Quality Assurance Agency
QSM: Quality Systems Manual
SNA-IBC: Southern Nevada Amendments to the International Building Code
TG: Technical Guideline
TRG: Technical Reporting Guideline

4.0 DEFINITIONS

For the purposes of this technical reporting guideline certain terms, phrases, words and their derivatives shall be construed as specified in this section, the technical codes, and the Clark County BAC.

APPROVED DATE: February 1, 2010
EFFECTIVE DATE February 12, 2010

Written by:	Concurred by:	Approved by:
 Nolan Baker, E.I.T., ET Associate Engineer	 David L. Durkee, P.E. Principal Engineer	 Theodore Droessler, P.E. Engineering Manager

Approved Revisions: Changes made to the original construction documentation, which have been submitted to CCDDS-BD for review and are accepted.

Construction Documents: Plans, specifications, supporting calculations and other data prepared to describe the design, materials, physical characteristics, location, orientation, and scope of a proposed project necessary to obtain a permit.

Daily Report: A report that includes all inspections, observations, testing activity, non-compliances, area acceptance reports, etc. that took place on a specific day.

Mechanical Quality Assurance Agency: An agency approved by the CCDDS-BD to perform mechanical type special inspections and/or testing.

Non-Compliance Report: A notification to the CCDDS-BD staff and to the contractor, that an item was found that was not in compliance with the approved contract documents. This report shall contain a detailed description of the deficiency with references to the use of unapproved documents, if applicable. This report shall be written immediately upon finding said violation/deficiency.

Responsible Registered Design Professional: An architect registered pursuant to NRS Chapter 623 or a professional engineer licensed pursuant to NRS Chapter 625, who is responsible for the coordination of each aspect of the construction documents that are submitted to the CCDDS-BD staff for permitting.

Smoke-Control Diagram. A construction document that depicts device locations and function, equipment performance, systems integration and sequencing of smoke-control measures necessary to verify compliance to the design approach for smoke-control outlined in the approved fire protection report. These diagrams shall include at a minimum, an equipment/device input/output matrix, smoke-control zone layouts, control wiring details, and activation zone layouts.

Smoke-Control Test Plan: Proposed detailed procedures and methods provided by the prime agency that are used for the commissioning of the smoke-control system including all the items/equipment subject to such inspections and tests. The smoke-control test plan shall include at a minimum, test scenarios (listing all smoke-control equipment) and a detailed narrative explaining how the smoke-control system testing will be accomplished. It also addresses the frequency and location of smoke barrier leakage testing.

Special Inspector: An inspector, employed by a quality assurance agency, which has demonstrated his/her competence to the satisfaction of the Building Official, has achieved and maintained national certification(s), and meets the requirements of TG-17.

Technical Reporting Guideline: A guideline that provides inspection responsibilities and daily reporting requirements.

5.0 REFERENCES:

- BAC, Clark County Building Administrative Code
- IBC, International Building Code
- SNA-IBC, Southern Nevada Amendments to the IBC
- Technical Guidelines
- NFPA
- Mechanical Smoke-Control Systems – IBC 909 Systems; Firefighter Smoke-Control Panel – Published by Clark County Fire Department.

- Variable Frequency Drives used in Smoke-Control Systems. Published by the Clark County Department of Development Services – Building Division

6.0 RESPONSIBILITIES:

6.1 MQAA Special inspector responsibilities

6.1.1 Construction Documents

- Verify that a MQAA inspection requirement has been added to the mechanical portion of the project permit.
- Obtain a copy of the MQAA special inspection agreement.
- Complete Startup Notification Form
- Review and perform inspection activities utilizing the following information:
 - Latest revision of the approved Smoke-Control Diagrams
 - Approved Fire Protection Report with amendments and alternate requests, if applicable
 - Smoke-Control Test Plan
 - Manufacturer's installation instructions

6.1.2 Fan Inspections

- Review exhaust fan temperature rating calculation and verify the fan's installed location and motor ratings meet the specified temperature ratings..
- Compare airflow measurements with design values.
- Inspect fan belts and drive components.
- Inspect fan motors and associated components to ensure a minimum of 1.15 motor service factor and that nameplate voltage & horsepower are not exceeded during operation. Compare values to the approved smoke-control diagrams.
- Verify number of fan belts is 1.5-times normal service number of belts with a minimum of 2.
- Verify proper fan belt tension and fan rotation.
- Verify fans are supported and restrained by noncombustible devices.
- Verify response times (run and stop conditions).
- Verify the presence of power downstream of disconnects.
- Verify that fans operated under smoke-control conditions are monitored via current sensors.
- Verify that fans with Variable Frequency Drives (VFD) are configured to provide required airflow under smoke-control conditions.

6.1.3 Ductwork Inspections

- Locate and identify all ductwork that crosses smoke zone boundaries and ensure it is installed per approved construction documents and applicable codes.
- Confirm duct leak testing to 1.5-times the maximum design pressure for ductwork that crosses from one smoke zone to another.
- Ensure the measured leakage does not exceed 5-percent of the design

airflow.

- Examine the method of ductwork attachment and ensure it is directly attached to fire-resistive structural members by approved non-combustible hangers.

6.1.4 Damper Inspections

- Verify damper installation is in accordance with the manufacturer's instructions, IBC, and SNA-IBC.
- Verify damper response time and actuation.
- Ensure damper labeling and location is as depicted on the approved smoke-control diagrams.
- Verify that the fire and smoke dampers are provided with an approved means of access which is permanently identified on the exterior by a label having letters not less than 0.5 inch in height reading: fire/smoke damper, smoke damper, or fire damper.

6.1.5 Stairway Inspections

- Confirm barometric relief damper operation at 0.05-inch water column pressure and airflow $\geq 2,500$ cfm.
- Verify minimum pressure differential of 0.05-inch water column pressure from vestibule to stair and vestibule to corridor.
- Ensure the stairway is sealed and that any penetrations therein adhere to the IBC requirements for allowed penetrations.
- Verify penetrations are protected with fire-rated sealant or fire stop material per the IBC and their listing.

6.1.6 Door Inspections

- Confirm doors and their associated hardware installed at smoke barriers have a minimum 20-minute rating and are classified as smoke and draft-control assemblies with approved labeling. The fire rating label of the door shall show the letter "S"
- Verify doors have code compliant thresholds installed at their bottoms.
- Confirm door opening forces to adjacent smoke zones are limited to less than 30-lbs.
- Verify doors at passive smoke zone barriers are self-closing.
- Verify doors with hold open equipment auto-close under alarm conditions.
- Confirm stair/vestibule doors unlock due to fire alarm activation or power failure.
- Verify doors meet IBC and SNA-IBC requirements.

6.1.7 Initiating Device Inspections

- Upon initiation of applicable fire alarm devices, confirm fire alarm system annunciation and smoke control system response is per the approved FPR matrix and smoke-control diagrams.
- Verify air handling units (AHU) shut down upon their duct-mounted smoke detector activation or through the smoke-control system activation.
- Ensure doors with magnetic door releasing devices have smoke detectors installed to control them per the applicable code.

- Verify that smoke detection is zoned to correspond with the smoke-control system as indicated in the approved FPR and smoke-control diagrams.
 - Verify dampers close upon their duct-mounted smoke detector activation or through the smoke-control system activation.
- 6.1.8 Firefighter's Smoke-Control Panel Inspections
- Confirm that the layout of the panel matches the fire department approved drawing located in the fire command center.
 - Verify the operation of the panel is in accordance with the approved FPR, the smoke-control test plan, and the smoke-control diagrams.
 - Verify that all switches and lights conform to the actions listed in the approved FPR, the smoke-control test plan, and the smoke-control diagrams.
 - Verify smoke-control system equipment response times in accordance with SNA-IBC.
- 6.1.9 Smoke Zone Boundaries Inspections
- Confirm smoke zones have a minimum of 0.05-inch water column pressure measured across zone boundaries.
 - Verify sprinkler systems are zoned to match smoke zones and that no sprinkler piping cross smoke-zone boundaries shown in the approved FPR and smoke-control diagrams.
- 6.1.10 Smoke-Control System – General
- Ensure that passive smoke-control systems are tested using a door fan test apparatus configured to confirm the calculated allowable leakage is not exceeded.
 - Verify waterflow switches activate the smoke-control system as per the approved FPR and smoke-control diagrams.
 - Ensure kitchen hood exhaust systems shut down upon smoke-control system operation, if applicable.
 - Verify shutdown of normal ventilation equipment in accordance with the matrix on the smoke-control diagrams.
 - Verify exhaust method systems are in compliance by measurement of the air quantity exhausted from the smoke-zone and by verifying this air quantity meets or exceeds the design exhaust requirements.
 - Verify that modified airflow method systems are in compliance by measuring the airflow from the zone to the exterior. Make-up air velocity shall not be greater than 200-feet-per-minute (fpm) at the openings from the exterior.
 - Verify that carbon monoxide exhaust equipment not performing smoke-control functions are shut-down.
 - Ensure that smoke control system equipment is capable of at least 20-minutes continuous operation during the fire event.

7.0 PROCEDURE:

7.1 Special Inspections Daily Activity Report [IBC Chapter 17, BAC 22.02.525 (B) 2]

7.1.1 Content

- The report shall contain the permit number, the project name and address, the date of the inspection, the MQAA special inspector's printed name and signature, observer's name and not indicating that he/she is an observer, and a detailed description of the area and/or equipment inspected (floor designation, gridlines or other acceptable methods to clearly identify the specific area or equipment inspected).
- A report is required for any project meetings attended by the MQAA special inspector. This report shall document all major topics discussed in the meeting as well as the life-safety systems personnel in attendance.
- Document that the CCDDS-BD approved construction documents are on site.
- The MQAA special inspector shall document equipment, installations and system response which does not comply with the BAC, IBC, SNA-IBC, and approved construction documents, through the issuance of a Non-Compliance Report (NCR).
- Document the name of all observers.

7.1.2 Frequency

- The MQAA special inspector shall write a special inspections daily activity report for each day they are on the project site and/or every time pertinent project information requires annotation away from the project site.
- At a minimum, the MQAA special inspector shall comply with the BAC 22.02.525 (B) 2.

7.1.3 Review & Approval

- Reports shall be reviewed and approved per the agency QSM procedure and CCDDS-BD specified requirements.

8.0 RECORDS:

- 8.1** Daily inspection reports, test data, non-compliance reports, record of corrections, inspection completion report, and area acceptance reports, when applicable, shall be included in the Final Report.

9.0 ATTACHMENTS:

10.0 REVISION HISTORY:

Title	Revision/Approved Date	Effective Date
TRG-K	February 1, 2010	February 12, 2010
TRG-K	October 10, 2008	October 17, 2008
TRG-K	April 27, 2007	May 15, 2007

Appendix C:

Work Plan

Appendix C

Work Plan

1. Work Plan – General

Pursuant to the Building Administrative Code, Section 22.02.085, a work plan is required for any of the following:

- a. Work identified on the Quality Assurance Special Inspection Agreement (QAA-SIA) that was inspected and/or tested by an unapproved person.
- b. Permit holder or owner failed to engage the designated Quality Assurance Agency (QAA) to perform special inspection activities identified on the QAA-SIA.
- c. Permit holder or owner failed to obtain prior approval to change the designated QAA and the work, which requires special inspections, has commenced.
- d. Work that is in nonconformance to the approved construction documents or the governing codes and requires additional verification or remedial action.

2. Work Plan Responsibilities

- a. Building Division (CCDDS-BD)
 - Generate a deficiency letter or Notice of Violation requiring the work in affected areas to be stopped, where applicable.
 - Review the work plan submitted by the Registered Design Professional or the QAA.
 - Release approved Work Plan to contractor.
- b. Permit holder/owner
 - Cease all work in the non-compiling areas.
 - Provide the RDP Work Plan Resolution to CCDDS-BD for review.
- c. Quality Assurance Agency
 - Issue an NCR when the permit holder/owner does not engage the designated QAA to perform special inspection activities identified on the QAA-SIA.
 - Generate a Work Plan when requested and submit it to the RDP for review and approval.
 - Proceed with verification activities after the Work Plan is reviewed & accepted by CCDDS-BD.
 - Document compliance to the approved work plan. Submit the Work Plan Resolution to the RDP for review and approval.

3. Work Plan and Work Plan Resolution Content

- A. Work Plans must be sealed by the Engineering Manager of the designated QAA or the RDP as appropriate. Other information may be required as determined by CCDDS-BD. A Work Plan shall contain the following elements.

- Specify the work that requires verification.
 - Identify the lateral and vertical extent of each area of work that requires verification. When requested by CCDDS-BD the work must be identified on a copy of the approved plans.
 - The QAA and/or the RDP shall specify the verification method(s) for the work that requires verification.
 - Provide the names of the proposed personnel which will perform the verification activity, and the date the verification activities are going to commence.
- B. Work Plan Resolution must be sealed by the Engineering Manager of the designated QAA and the RDP as appropriate. Other information may be required as determined by CCDDS-BD. A Work Plan Resolution shall contain the following elements.
- All inspection daily reports and test results for the verification performed.
 - A description of the verification process and the results.
 - A statement that all work is in compliance with the approved construction documents and the applicable codes.